2010

WHITE LAKE

PEDESTRIAN TRANSPORTATION PLAN

TOWN OF WHITE LAKE

STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION *

Division of Bicycle & Pedestrian Transportation

ACKNOWLEDGEMENTS

KEY PARTNERS

The Town of White Lake *and*
The North Carolina Department of Transportation (NCDOT),
Division of Bicycle and Pedestrian Transportation (DBPT)

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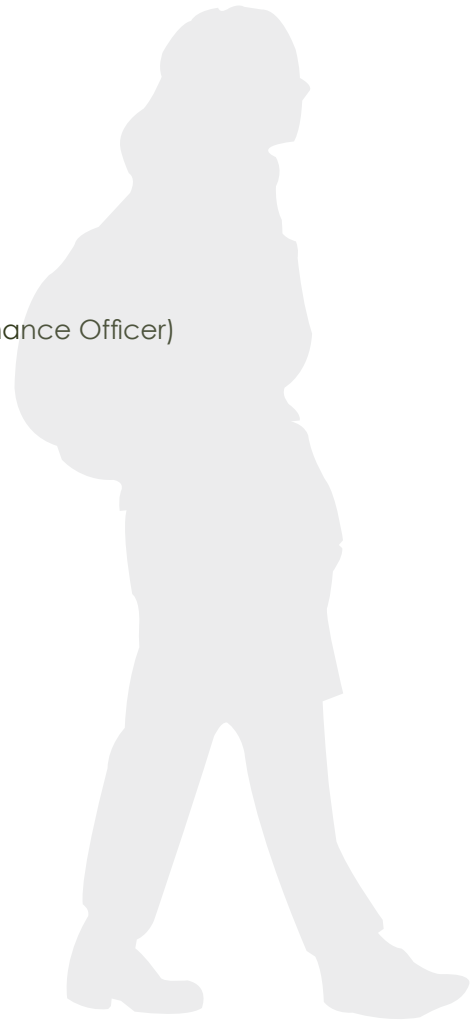
Kristen Womble
John Vine-Hodge (NCDOT DBPT Planning Program Manager)

PROJECT CONSULTANT

Greenways Incorporated



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1 INTRODUCTION

CHAPTER OUTLINE:

OVERVIEW

In 2009, the Town of White Lake applied for and was awarded a grant from the North Carolina Department of Transportation (NCDOT) to develop this Pedestrian Transportation Plan. This Plan combines past planning efforts with new research and analysis, and includes public input. The result is a complete, up-to-date framework for moving forward with tangible pedestrian improvements.

The Town already features some pedestrian-friendly elements, however, current conditions within White Lake's core 'loop' are not adequate to serve the needs of both the residents and the Town's many visitors. This plan will enhance conditions for pedestrians throughout town, particularly in areas identified by the project steering committee and Town staff. Beyond physical improvements, this plan also outlines policies and programs to help encourage people to walk more often, drive more safely, and to grow as a Town with the needs of pedestrians taken into full consideration.

VISION and GOALS

The following vision and goals were developed out of the Town's planning grant application and were reconfirmed early in the planning process, during the project Kick-Off meeting. The statement below applies to both the Plan itself, and the desired outcome of its implementation:

White Lake's Pedestrian Plan Vision Statement:

The Town of White Lake will be a pedestrian-friendly community, where accessibility, connectivity, and safety is improved around the Lake via a network of sidewalks and multi-use trails. The goals of this effort are as follows:

- Develop a long-range plan for the location, implementation, and costs associated with making improvements to pedestrian facilities
- Create a pedestrian-friendly community where related activities are encouraged and promoted
- Expand the existing pedestrian network, including sidewalks, multi-use trails, and greenways
- Improve pedestrian access and safety
- Improve connectivity to residential, businesses, and tourist areas, while improving public access to White Lake

PLANNING PROCESS

This planning process began with a 'kick-off' meeting in late summer 2009, which included a tour of key areas in town by the project staff, steering committee, and consultants. This meeting was followed by development of a series of working documents that formed a draft plan. The plan communicates the current conditions for walking in White Lake, recommends improvements, and outlines strategies to carry out those recommendations. The planning process also includes opportunity for public input and concludes in early 2010.

PUBLIC BENEFITS of PEDESTRIAN TRANSPORTATION

When considering the level of dedication in time and valuable resources that it will take to fulfill the goals of this plan, it is also important to measure the immense value of pedestrian transportation. Walking helps to improve people's health and fitness, enhance environmental conditions, decrease traffic congestion, and will contribute to a greater sense of community.

Scores of studies from experts in the fields of public health, urban planning, urban ecology, real estate, transportation, sociology, and economics have supported such claims and have acknowledged the substantial value of supporting walking as it relates to active living and alternative transportation.

Communities across the United States and throughout the world are implementing strategies for serving the walking needs of their residents, and have been doing so for many years. They do this because of their obligations to promote health, safety and welfare, and also because of the growing awareness of the many benefits of walking.

INCREASED HEALTH and PHYSICAL ACTIVITY

A growing number of studies show that the design of our communities—including neighborhoods, towns, transportation systems, parks, trails and other public recreational facilities—affects people's ability to reach the recommended daily 30 minutes of moderately intense physical activity (60 minutes for youth). According to the Centers for Disease Control and Prevention (CDC), "physical inactivity causes numerous physical and mental health problems, is responsible for an estimated 200,000 deaths per year, and contributes to the obesity epidemic." The increased rate of disease associated

The CDC determined that creating and improving places to be active could result in a 25 percent increase in the number of people who exercise at least three times a week.

- Centers for Disease Control & Prevention: Guide to Community Preventive Services. (2002)

with inactivity reduces quality of life for individuals and increases medical costs for families, companies, and local governments.

The CDC determined that creating and improving places to be active could result in a 25 percent increase in the number of people who exercise at least three times a week. This is significant considering that for people who are inactive, even small increases in physical activity can bring measurable health benefits . The establishment of a safe and reliable network of sidewalks and trails in White Lake will have a positive impact on the health of local residents. The Rails-to-Trails Conservancy puts it simply: "Individuals must choose to exercise, but communities can make that choice easier."

ECONOMIC BENEFITS

Walking is an affordable form of transportation. According to the Pedestrian and Bicycle Information Center (PBIC), of Chapel Hill, NC, the cost of operating a car for a year is approximately $5,170, while walking is virtually free. The PBIC explains, "When safe facilities are provided for pedestrians and bicyclists, more people are able to be productive, active members of society. Car ownership is expensive, and consumes a major portion of many Americans' income." (Pedestrian and Bicycle Information Center: *Economic Benefits*. Retrieved in 2010 from http://www.walkinginfo.org/why/benefits_economic.cfm)

Walking becomes even more attractive from an economic standpoint when the rising price of oil (and decreasing availability) is factored into the equation. The unstable cost of fuel reinforces the idea that local communities should be built to accommodate people-powered transportation, such as walking and biking.

From a real estate standpoint, consider the positive impact of trails and greenways, which are essential components of a complete pedestrian network. According to a survey by the National Association of Home Realtors and the National Association of Home Builders, trails ranked as the second most important community amenity out of a list of 18 choices (Consumer's Survey on Smart Choices for Homebuyers, 2002) - incidentally, 'highway access' ranked first. Additionally, the study found that 'trail availability' outranked 16 other options including security, ball fields, golf courses, parks, and access to shopping or business centers. Findings from the American Planning Association (How Cities Use Parks for Economic Development, 2002), the Rails-to-Trails Conservancy (Economic Benefits of Trails and Greenways, 2005), and the Trust for Public Land (Economic Benefits of Parks and Open Space, 1999) further substantiate the positive connection between trails and property values across the country.

ENVIRONMENTAL IMPROVEMENTS

When people choose to get out of their cars and walk, they make a positive environmental impact. They reduce their use of gasoline, which then reduces the volume of pollutants in the air. Other environmental impacts can be a reduction in overall neighborhood noise levels and improvements in local water quality as fewer automobile-related discharges wind up in the local rivers, streams, and lakes. Furthermore, every car trip replaced with a pedestrian trip reduces U.S. dependency on fossil fuels, which is a national goal.

Environmental benefits can be further promoted through walking by offering interpretive signs that educate passers by about the local environment and environmental systems.

Trails and greenways are also part of the pedestrian network, conveying their own unique environmental benefits. Greenways protect and link fragmented habitat and provide opportunities for protecting plant and animal species. Aside from connecting places without the use of air-polluting automobiles, trails and greenways also reduce air pollution by protecting large areas of plants that create oxygen and filter air pollutants such as ozone, sulfur dioxide, carbon monoxide and airborne particles of heavy metal. Finally, greenways improve water quality by creating a natural buffer zone that protects streams, rivers and lakes, preventing soil erosion and filtering pollution caused by agricultural and road runoff.

By walking for our trips that are less than 2 miles, we could eliminate 40% of local car trips. (Above: Town staff and project team members walking in White Lake)

TRANSPORTATION BENEFITS

Roughly 40% of all trips taken by car in the U.S. are less than two miles (Bureau of Transportation Statistics: *National Household Travel Survey,* 2002). By taking these short trips on foot, rather than in a car, citizens can have a substantial impact on local traffic and congestion. Additionally, many people do not have access to a vehicle or are not able to drive. An improved pedestrian network provides greater and safer mobility for these residents.

The number of older Americans is expected to double over the next 25 years (Brookings Institution: *The Mobility Needs of Older Americans: Implications for Transportation Reauthorization*, 2003). According to the Brookings Institution, "All but the most fortunate seniors will confront an array of medical and other constraints on their mobility even as they continue to seek an active community life". Senior citizens deserve access to independent mobility, and providing safe place for them to walk is an essential factor in meeting this important need.

Children under the age of 16 also deserve access to safe mobility. Fewer children walk or bike to school than did so a generation ago: In the past few decades, the percent of students between the ages of 5 and 15 who walked or biked to or from school has dropped from 42% to 16% (U.S. Centers for Disease Control and Prevention: *Kids Walk-to-School: Then and Now—Barrier and Solutions*, 2005).

QUALITY OF LIFE

Many factors go into determining the quality of life for the citizens of a community: the local education system, prevalence of quality employment opportunities, and affordability of housing are all items that are commonly cited. Increasingly though, citizens claim that access to alternative means of transportation and access to quality recreational opportunities such as parks and greenways, are important factors for them in determining their overall pleasure within their community. Communities with such amenities can attract new businesses, industries, and in turn, new residents. Furthermore, quality of life is positively impacted by walking through the increased social connections that take place by residents being active, talking to one another and spending more time outdoors and in their communities.

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White Lake, North Carolina

2 EXISTING CONDITIONS

CHAPTER OUTLINE:

OVERVIEW

The Town of White Lake is a unique community and popular tourist destination in North Carolina. White Lake was chartered in 1923, appealed in 1925, and chartered again in 1951. The major highways that surround the Town include NC Highways 41 and 53 and US Highway 701. The lake is a spring fed natural water body that has a sandy bottom and is situated in the center of the Town and is labeled as "the Nation's Safest Beach".

Being a popular tourist destination is evident by the significant number of vacant homes that are used for summer retreats and rentals. The population of the Town increases dramatically during the summer months and this high demand puts added pressure on the Town. One of these pressures is providing citizens and tourists with safe and adequate facilities to walk.

One of the aspects of this plan is to address the needs of pedestrians within White Lake by providing connectivity around the lake for both recreation and transportation. Providing pedestrian connectivity around the lake and Town will help in reducing traffic congestion during the peak season and will facilitate a healthier and safer pedestrian environment.

LAND USE AND DEVELOPMENT

According to the United States Census Bureau, the town has a total area of 2.5 square miles, 0.9 square miles of it is land and 1.6 square miles of it is water. Most of the land within the Town limits is developed as residential with some commercial and governmental use. White Lake residents obtain most goods and services in Elizabethtown since it is closely located. White Lake's population is classified as 100% rural with 97% classified as non-farm.

DEMOGRAPHICS

As a resort community, the Town attracts 200,000 tourists annually, mostly during summer months to boat, fish, swim, sunbathe, and water ski. With a 2007 certified population of 585 residents, White Lake's population increases dramatically during summer months to 3,500 residents.

The Town's population swells during summer months, increasing pedestrian activity in many areas, especially near Goldston's Beach entrance, shown above.

As of the 2000 Census, the population density was 593 per square mile, and there were 1,060 housing units at an average density of 1,188.5/sq mi (see Population Density Map on page 11). The racial makeup of the town was 92.25% White, 3.59% African American, 0.57% Asian, 3.02% from other races, and 0.57% from two or more races. Hispanic or Latino of any race comprised 3.40% of the population.

There were 238 households out of which 23.9% had children under the age of 18 living with them, 50.4% were married couples living together, 9.7% had a female householder with no husband present, and 37.0% were non-families. Thirty-three percent of all households were made up of individuals and 10.9% had someone living alone who was 65 years of age or older. The average household size was 2.22 and the average family size was 2.83.

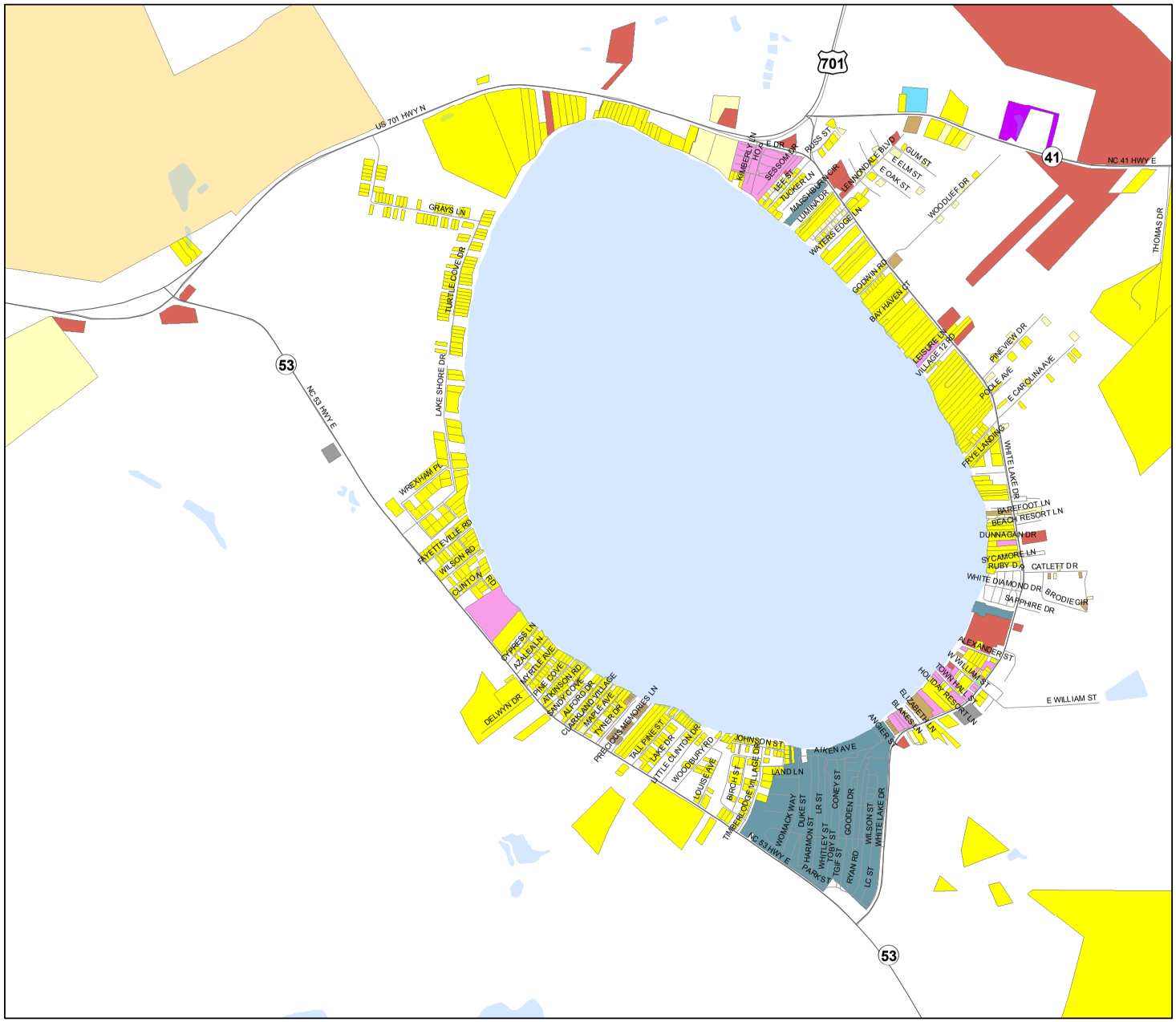
In the town, the population was spread out with 20.8% under the age of 18, 7.0% from 18 to 24, 27.6% from 25 to 44, 30.8% from 45 to 64, and 13.8% who were 65 years of age or older. The median age was 42 years. These ages are similar to the statewide percentages, with White Lake having a slightly older population (North Carolina median age is 36.8) (U.S. Census: *American Community Survey*, 2006-2008).

The median income for a household in the town was $35,375, compared to $46,574 across North Carolina. About 14.2% of the population were below the poverty line, which was about the statewide average in 2008 (U.S. Census, State & County Quick Facts, retrieved in 2010 from http://quickfacts.census.gov/

TRIP ATTRACTORS

The term "trip attractors" refers to places which people commonly walk to or from, or places they would like to walk to or from with improved pedestrian facilities. For example, the lake is one of the main trip attractors within the Town of White Lake since residents and tourists walk to and from the lake regularly. A few of the other trip attractors within White Lake include: Town Hall, Camp Clearwater, various amusement and water parks, Post Office, various restaurants, and convenience stores (See Pedestrian Network map on page 17 for Trip Attractors).

Map 2.1
White Lake Pedestrian Plan
Current Land Use



PEDESTRIAN CONDITIONS

White Lake does have some existing sidewalk infrastructure that was recently constructed on Hwy 53 and White Lake Dr, connecting Camp Clearwater with Town Hall. Unfortunately, the existing sidewalks only serve a small portion of the Town and do not make complete connections. In addition to the need for expansion, this existing system does not adequately address the needs of the town's key user populations and key destinations such as those mentioned previously. Furthermore, additional pedestrian facilities such as cross-walks, count-down signals, and curb ramps are lacking. There is one existing crosswalk on White Lake Drive (at Gooden Drive), which connects two portions of existing sidewalk. The town relies on this partial network to facilitate the flow of tourists and residents between residential areas and the town's commercial core including access to the lake (See Pedestrian Network map on page 17 for existing facilities).

Above: New sidewalk near Town Hall, with curb ramps.

Highway 701 that spans the northern portion of Town is a major thoroughfare between Elizabethtown and White Lake and currently has no pedestrian facilities on either side. Highway 53, on the eastern side of Town, currently only has a small section of sidewalk in the southern limits of the Town. White Lake Drive completes the circle of 701 and 53 and also currently does not have pedestrian facilities past Town Hall and continuing north-west. See the table at right for the average daily traffic on these roads.

Average Daily Traffic (ADT)

NC-53	*2,200*
US-701 at NC-53	*6,500*
US-701 at SR-1515	*5,100*
SR-1515	*2,200*

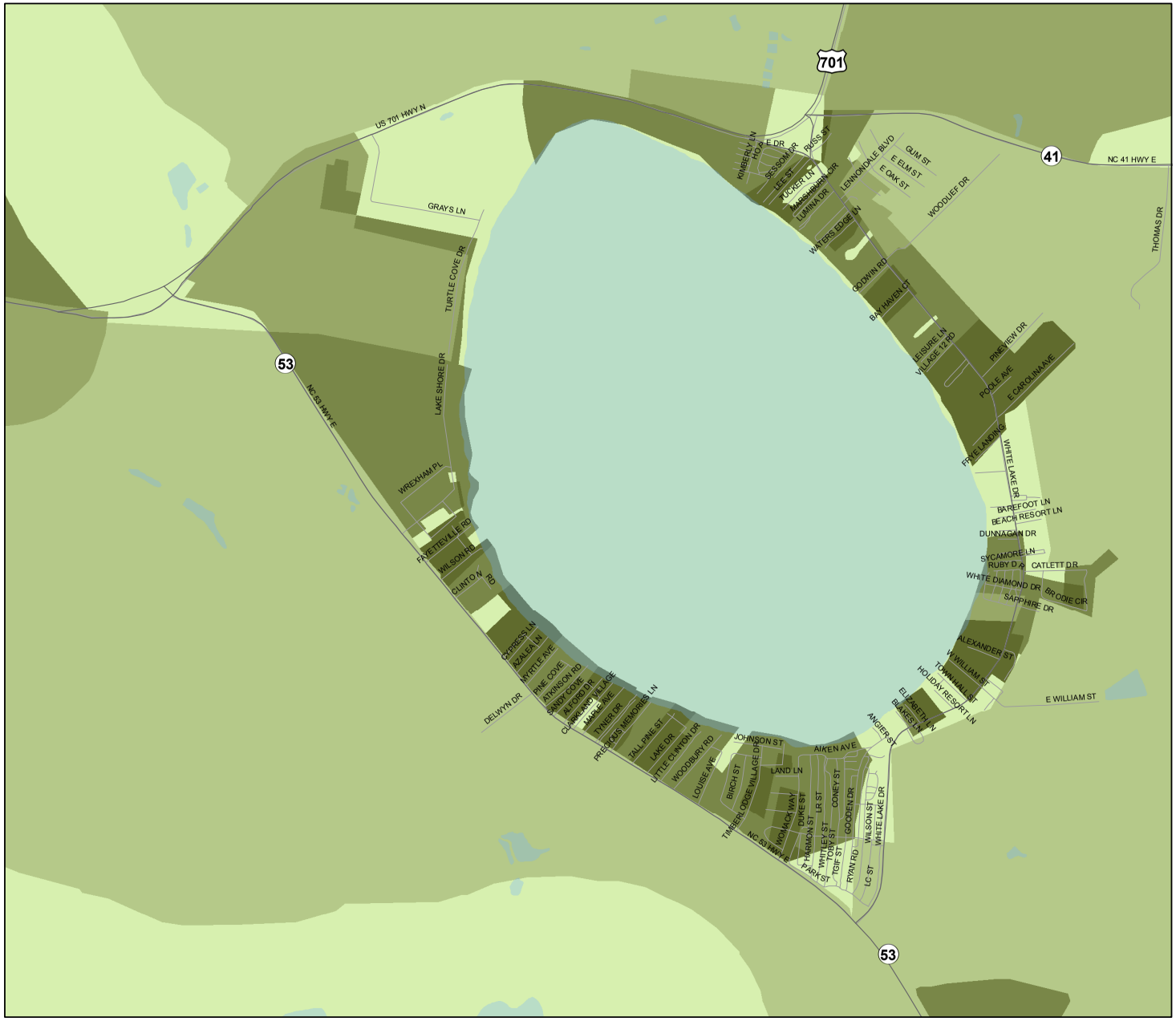
A roadway's average daily traffic (ADT) is the volume of traffic counted on the roadway over a given time period (greater than one day but less than one year) divided by the number of days in that time period. The counts above were taken in 2008.

Currently, there are no ongoing education or enforcement programs within the Town of White Lake for pedestrians. However, the Town of White Lake has worked diligently on gaining citizen support, creating walkway plans, and has applied for numerous grants through NCDOT and other organizations to help plan and create pedestrian facilities. Creating a more "walkable" community in White Lake will in itself help to encourage residents and tourists to travel the area by foot rather than by vehicle, when feasible. This will not only provide town residents and tourists with a viable transportation option, but will promote a healthier lifestyle.

Above: Hwy 701, with Scotchman Gas Station in the background.

Since 1990, there have been two recorded pedestrian accidents in White Lake, both occurring inside the privately owned Camp Clearwater (see the Pedestrian Crash Locations Map on page 12). Although this number is low, there is still a high demand for safe and adequate pedestrian facilities in White Lake.

Map 2.2
White Lake Pedestrian Plan
Population Density



Total Population in 2007 was 585 residents. Population increases during summer months to 3,500 residents, with more than 200,000 visitors annually.

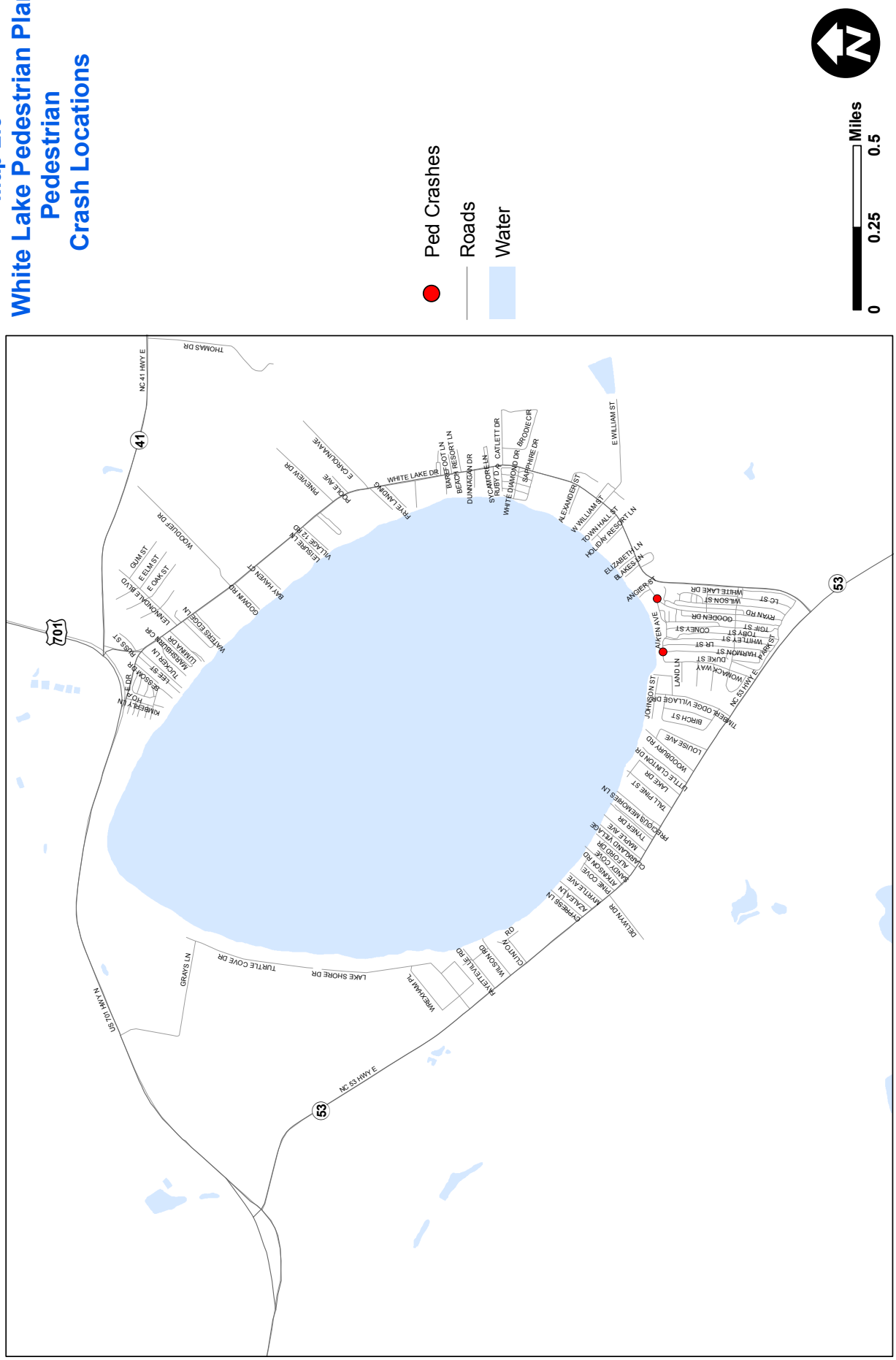
Population Density

- Lower Density
- Higher Density
- Roads
- Water

Map data source:
2000 Census
(Block Group Data)

Miles
0 0.25 0.5

Map 2.3
White Lake Pedestrian Plan
Pedestrian Crash Locations



SUMMARY OF EXISTING DOCUMENTS

2009 COMPREHENSIVE SYSTEM WIDE RECREATION AND PARK PLAN FOR BLADEN COUNTY (2009)

This plan addresses the recreation and park needs for the County. Specific emphasis is placed on the need for more trails and programs for biking, hiking, jogging, and walking throughout the County and White Lake is mentioned in particular need of this. Furthermore, this plan supports the development and implementation of a County Greenways Plan which would link important destinations together, such as White Lake, with surrounding communities and destinations.

WHITE LAKE 2000-2020 LAND USE PLAN (2000)

The Town's land use plan sets forth goals, objectives, and recommendations for the future land use patterns for the Town. While many other aspects of land use planning are mentioned, the need for more pedestrian facilities is among the top goals. Below are some relevant excerpts from the plan:

- Goal 2 : Promote development that will improve the quality of life in White Lake has as the first objective, encourage esthetic improvements such as landscaping, signage, and walkways.

- Goal 3: Provide an opportunity for public recreation in White Lake has as the first objective; construct a multi-purpose trail linked to a system of trails that will serve the entire community. Some suggested policies and actions are; work with NCDOT to designate a multi use trail in the TIP, consider construction of the project in phases, and to pursue a combination of NCDOT and local efforts.

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Photo Visualization for White Lake Drive

3 PROJECT RECOMMENDATIONS

CHAPTER OUTLINE:

OVERVIEW

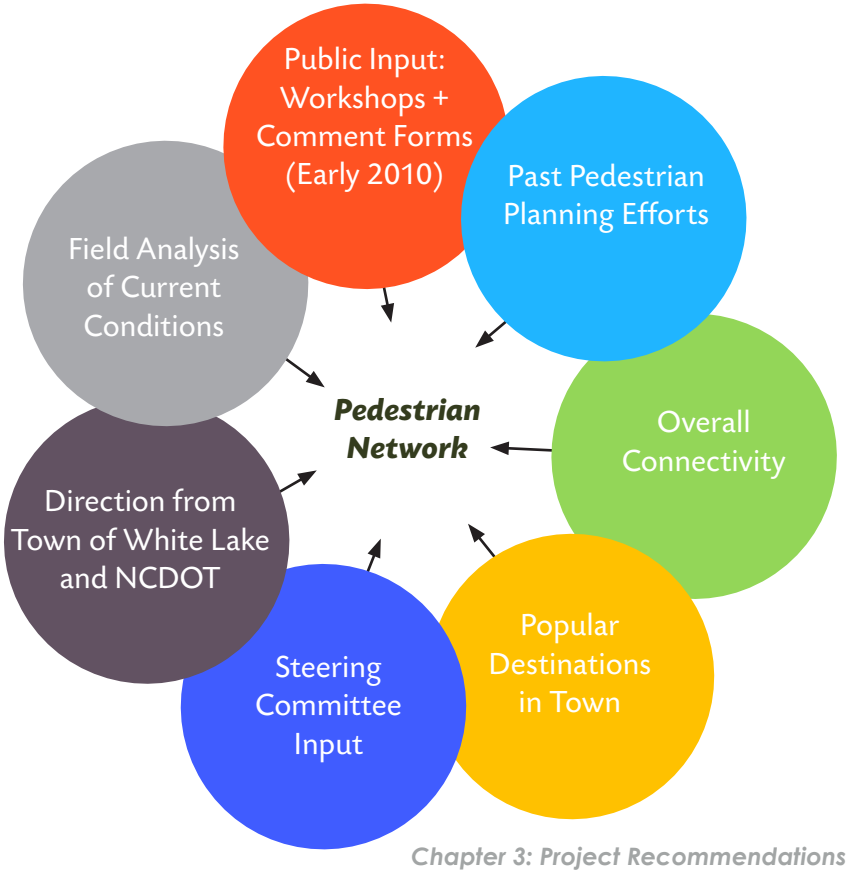
This chapter contains a series of recommended changes to the Town of White Lake's physical environment that will create a safe, accessible, and connected pedestrian loop around White Lake.

METHODOLOGY

A variety of sources were consulted during the development of these recommendations: input from the town staff and steering committee, previous plans and studies, maps of existing pedestrian conditions, the consultant's fieldwork inventory, public input, and noted pedestrian destinations. Fieldwork included an examination of conditions at key roadway crossings, primary roadway corridors, and a consideration of trail opportunities. Map discussion and analysis was conducted at the project steering committee meeting and during the public meeting.

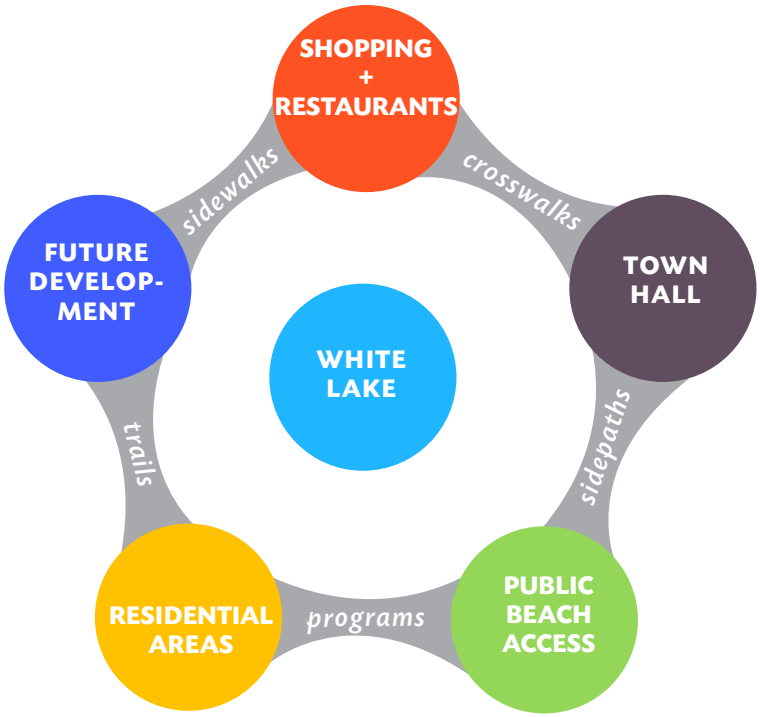
INPUTS FOR PEDESTRIAN RECOMMENDATIONS

This diagram illustrates the inputs used to develop this Plan's recommendations.



THE PEDESTRIAN NETWORK

Three main types of pedestrian projects have been identified for the Town of White Lake and are outlined on the following pages. They include sidewalks, crossing improvements, and multi-use trails (a.k.a, greenway trails and sidepaths). Conceptually, these pedestrian recommendations can be seen as a network of 'hubs and spokes', with White Lake being the central feature (see right). Public beach access, residential areas, restaurants, and other places where people might walk to and from are the 'hubs', whereas sidewalks, crosswalks, trails, and other pedestrian facilities are the 'spokes' that connect them.



The 'hubs and spokes' model conceptually illustrates how destinations in White Lake will be linked through various types of pedestrian facilities.

The complete recommended network of sidewalks, crossing improvements, and trails can be found on Map 3.1, page 17.

The recommendations should be completed in phases (as prioritized at the end of this chapter). However, individual projects within the network could be developed as opportunities arise, regardless of the order. Also, new programs could make walking safer, and encourage people to walk more often, as outlined in Chapter 4: Policies and Programs.

SIDEWALKS

The recommended sidewalks in White Lake aim to expand upon the existing sidewalks (Map 3.1, page 17). These are mainly along White Lake Drive. Guidance for the design of sidewalk projects is provided in Chapter 6.

PEDESTRIAN-FRIENDLY CROSSINGS

Several pedestrian improvements are located at roadway crossings. Consultant fieldwork and committee input helped to identify popular crossing points that are in need of minor to significant improvements (Map 3.1, page 17, and Table 3.1, page 18).

At a minimum, crossings with sidewalks on each side should possess curb cuts with ramps and marked crosswalks (which helps to satisfy the standards set forth by the American Disability Act of 1991). Busy

MAP 3.1: DRAFT Pedestrian Network

**See page 24 for alternative alignment along NC 53*

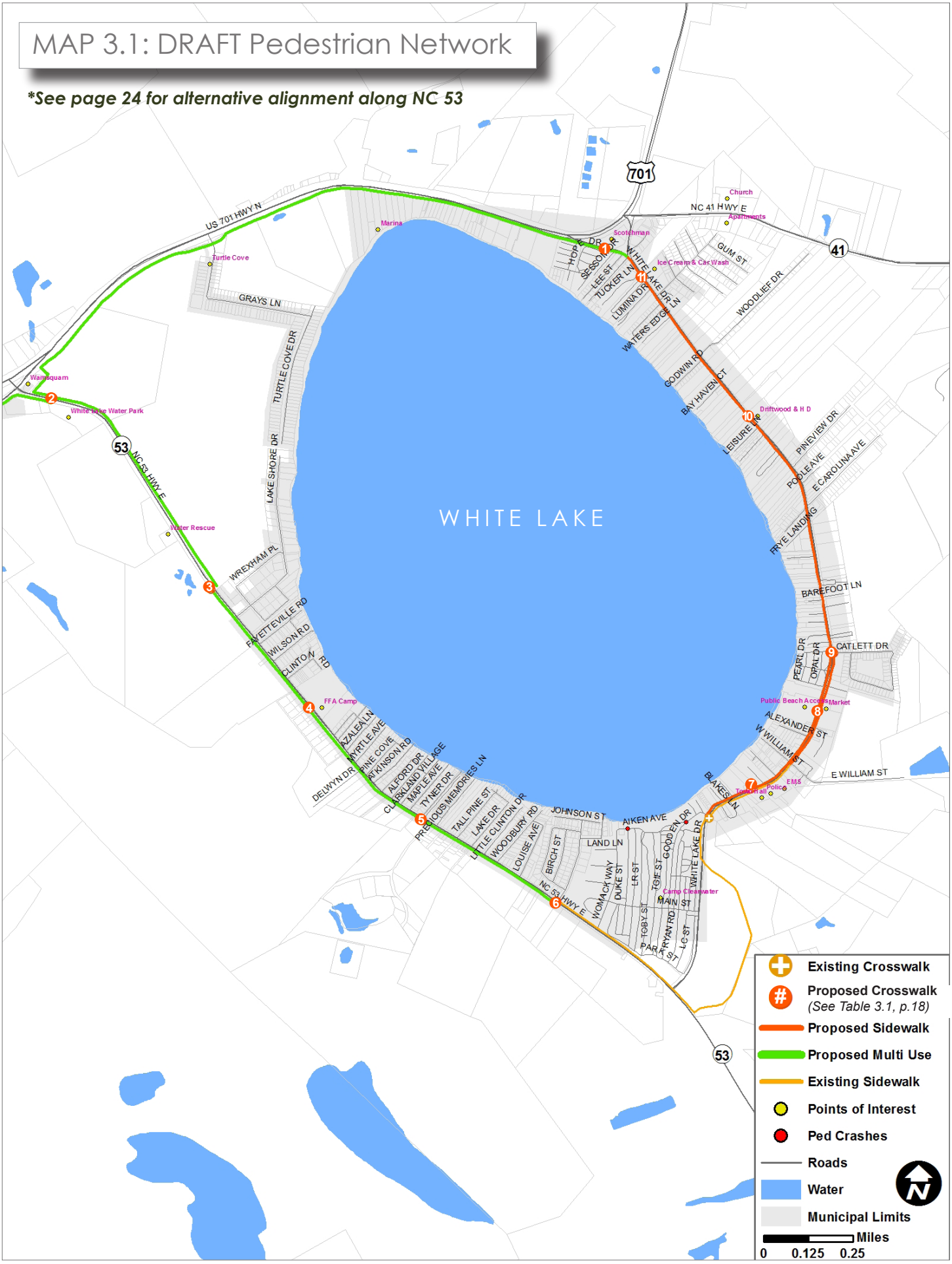


TABLE 3.1 CROSSING RECOMMENDATIONS

Map ID #	Road Name	Crossroad or Entrance	High-Visibility Thermoplastic Crosswalks *($300 each for ladder style crosswalk - FHWA)*	Curb Ramp with Truncated Dome *($800 each for new; $1,500 retrofitted - FHWA)*	Notes	Total Cost for Special Features	Total Cost
1	White Lake Dr	Entrance to Scotchman	$1,500	$800	Future trail would connect to convenience store with crosswalk	$0	$2,300
2	NC 53	Near entrance to Water Park	$1,500	$1,600	Future trail would connect to water park with crosswalk	$0	$3,100
3*	NC 53	Near Lake Shore Dr (North at private land)	$1,500	$1,600	Crossing would connect the future trail along proposed route (this crossing is not needed in the alternative routing on p. 24)	0	$3,100
4*	NC 53	Entrance to FFA Camp	$1,500	$1,600	Crossing would connect the future trail to a popular lake side camp (this crossing is not needed in the alternative routing on p. 24)	0	$3,100
5*	NC 53	Tyner Dr	$1,500	$1,600	Crossing would connect the future trail to a higher-density lake side residential area (this crossing is not needed in the alternative routing on p. 24)	0	$3,100
6*	NC 53	Timberlodge Village Dr	$1,500	$1,600	Crossing would connect the future trail with existing sidewalk (this crossing is not needed in the alternative routing on p. 24)	$0	$3,100
7	White Lake Dr	Entrance to Town Hall	$1,500	$1,600	Crossing would connect lake side residents and busineses to Town Hall	$0	$3,100
8	Commercial Area	Grocery Market/Parking Lot	$1,500	$1,600	Crossing would connect the #1 identified pedestrian issue in White Lake, where pedestrian tourists in high season frequently cross between parking areas and commercial areas. Related cost info: Pedestrian Zone flashing beacon signs ($10,000); 4 street trees ($4,900); replace and setback existing chain-link fence ($1,750); textured pavement for walkway in front of store parking lot ($6,250); 4 pedestrian-scale street lamps ($8,800)	$31,700	$34,800
9	White Lake Dr	Catlett Dr	$1,500	$1,600	Crossing would connect where future sidewalks change from both sides to lake side only.	$0	$3,100
10	White Lake Dr	Entrance to Driftwood	$1,500	$1,600	Crossing would connect commercial locations (identified as trip attractors) with lake side sidewalks. Also would be the only crossing in more than one mile.	$0	$3,100
11	White Lake Dr	Marshburn Cir	$1,500	$1,600	Crossing would connect commercial locations (identified as trip attractors) with lake side sidewalks.	$0	$3,100
						Total	$65,000
						15% Contingency	$9,750.00
						Grand Total	**$74,750.00**

* *Crossings 3, 4, 5, and 6 would <u>not</u> be needed in the alternative routing described on page 24.*

- *See the Design Guidelines chapter and the 2009 MUTCD for signage and other design details.*
- *Street tree cost estimate includes: trees, tree wells (5' x 5' hole, 2.5 cy amended soil, and pavement demo and hauling), and tree guards (NCDOT).*
- *Fence cost estimate is for a 100' long, 4-1/2' high three-rail wood "ranch" fence, plus removal of chain-link fence (www.costhelper.com).*
- *Cost estimate for solar-powered pedestrian zone LED flashing beacons includes installation at $1,000 each for two signs. Estimate above does not include the radar feature, which would double the cost (www.lightcastnetwork.org). NCDOT would need Federal approval for use of the LED beacons. Use standard flashing yellow pedestrian signs as an alternate. See design guidelines for more information.*
- *A textured surface is recommended in front of the store parking area to help make the area for pedestrians stand out while not prohibiting vehicles from entering and exiting the parking lot. Brick pavers can cost between $5-$15 per sq/ft. As an estimate, brick pavers can be installed for between $10-$20 per sq/ft. (www.paversearch.com). For example, a 50' long, 5' wide pathway (250 SF), would cost about $2,500 for materials and about $3,750 for installation.*

intersections could have a variety of improvements, such as pedestrian-activated crossing and countdown signals, medians, and pedestrian refuge islands. Some of these treatments have been proven to reduce crashes, as shown in the 2007 FHWA Crash Reduction Factors Study (http://safety.fhwa.dot.gov). The table below shows some typical countermeasures and associated crash reduction factors from that study.

PEDESTRIAN CRASH REDUCTION FACTORS

Countermeasure	Crash Reduction Factor
Install sidewalk	*74%*
Install pedestrian countdown signal heads	*25%*
Install pedestrian refuge islands	*56%*
Improve/install pedestrian crossings	*25%*

GREENWAYS/MULTI-USE TRAILS

A greenway is defined as a linear corridor of land that can be either natural, such as rivers and streams, or man-made, such as utility corridors or abandoned railroad beds. Many greenways contain trails. Greenway trails can be paved or unpaved, and can be designed to accommodate a variety of trail users, including bicyclists, walkers, hikers, joggers, skaters, horseback riders, and those confined to wheelchairs (hence, the term 'multi-use trail').

Greenway corridors can serve environmental purposes, protecting forests, enhancing water quality, and offering ample opportunities for environmental education. Greenway trails can be constructed of natural materials, gravel, crushed stone, asphalt, or concrete, depending upon the projected usage and surrounding landscape. Greenway trails in White Lake should be integrated with and serve as an off-road extension of the on-road pedestrian network. Proposed greenway trail corridors for White Lake are illustrated on Map 3.1, page 17.

This is a planning level of analysis for trail corridors. Each trail project should continue to have close coordination with the property owners along and adjacent to each corridor. Particular attention should be given to the design of landscape screening, fencing, and other treatments that help ensure the privacy (if so desired) of adjacent properties. The benefits of greenways (economic, environmental, etc), which are outlined in Chapter 1 of this Plan, should also be emphasized during the planning process for specific greenway corridors.

PRIORITY PROJECT CUT SHEETS

The projects on the following pages are logically grouped and ordered for purposes of prioritization, funding and implementation. Factors that influence project priority are the same that influenced the development of the overall recommendations, such as public input, steering Committee Input, field analysis, etc. (see "Inputs for Pedestrian Recommendations" on page 15). The target dates for completing these projects will depend primarily on level of funding and coordination put forth for implementation, all of which is the subject of Chapter 5.

Project Priority	#1 *	#2	#3
Unofficial Name	White Lake Trail	Core Area Pedestrian Improvements	Trail to Core Area Connection
Type	Multi-Use Trail/Sidepath	Sidewalk (Both Sides)	Sidewalk (One Side)
Location	NC 53 and US 701	White Lake Drive	White Lake Drive
From	Existing Sidewalk on NC 53	Angier St	Catlett St
To	Lee St	Catlett St	Lee St
Distance *(Feet)*	22,192	5,044	6,708
Linear Foot Cost (*for paved trail and sidewalk)*	$55	$38	$38
Sidewalk/Path Total	$1,220,560	$189,150	$251,550
Crossings Totals *(from table 3.1)*	$17,800	$41,000	$6,200
Total	$1,238,360 **	$230,150 **	$257,750 **

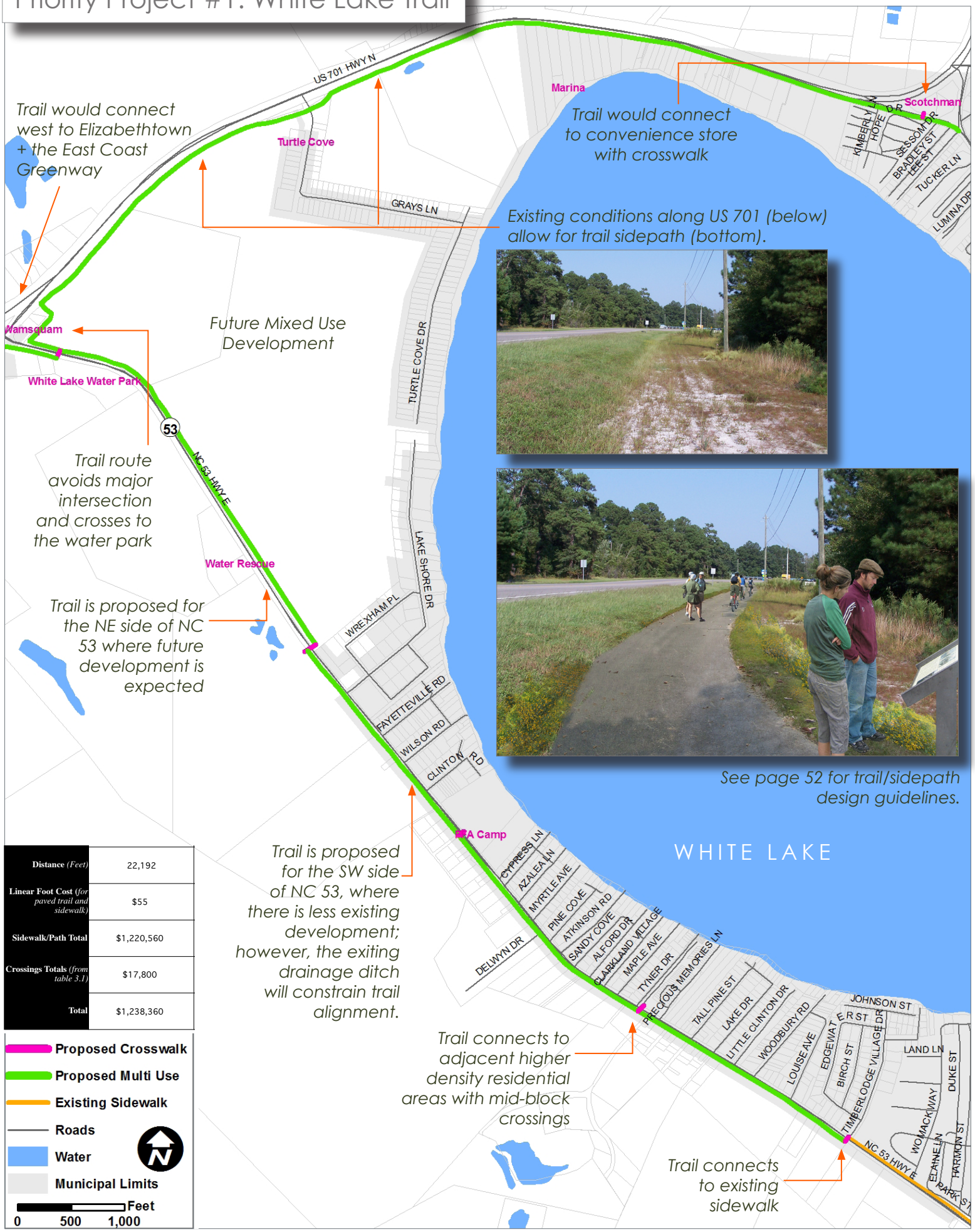
**See page 24 for alternative cost and alignment along NC 53. Using the alternative, the total cost for #1 would be $1,105,070 and the grand total would be $1,586,970.*

Grand Total **$1,726,260 ****

***These planning-level cost estimates do not account for ROW acquisition. Preliminary research of existing plans shows NCDOT ROW is 150' on US-701, but reduces approaching the four lane divided section near SR-1515; 60' on NC-53; and 6' from the edge of pavement for maintenance along the unimproved sections of SR-1515. The town's deed research along SR 1515 found several surveys that recognize 30' from the center of the road as ROW.*

Priority Project #1: White Lake Trail

*See page 24 for alternative alignment along NC 53



Distance *(Feet)*	22,192
Linear Foot Cost *(for paved trail and sidewalk)*	$55
Sidewalk/Path Total	$1,220,560
Crossings Totals *(from table 3.1)*	$17,800
Total	$1,238,360

Proposed Crosswalk
Proposed Multi Use
Existing Sidewalk
Roads
Water
Municipal Limits
Feet
0 500 1,000

Priority Project #2: Core Area Pedestrian Improvements

Right: Existing conditions along White Lake Drive near the Town's main public beach access. Below: A photo visualization of pedestrian improvements.

Note that maintenance of landscaping and street lights would be the responsibility of the Town.

Distance *(Feet)*	5,044
Linear Foot Cost *(for paved trail and sidewalk)*	$38
Sidewalk/Path Total	$189,150
Crossings Totals *(from table 3.1)*	$41,000
Total	$230,150

The solar-powered pedestrian zone flashing beacons would actually be placed further from the crossing.

Entrances to the parking area could be consolidated to reduce conflict points for pedestrians (fence could be replaced and set back slightly)

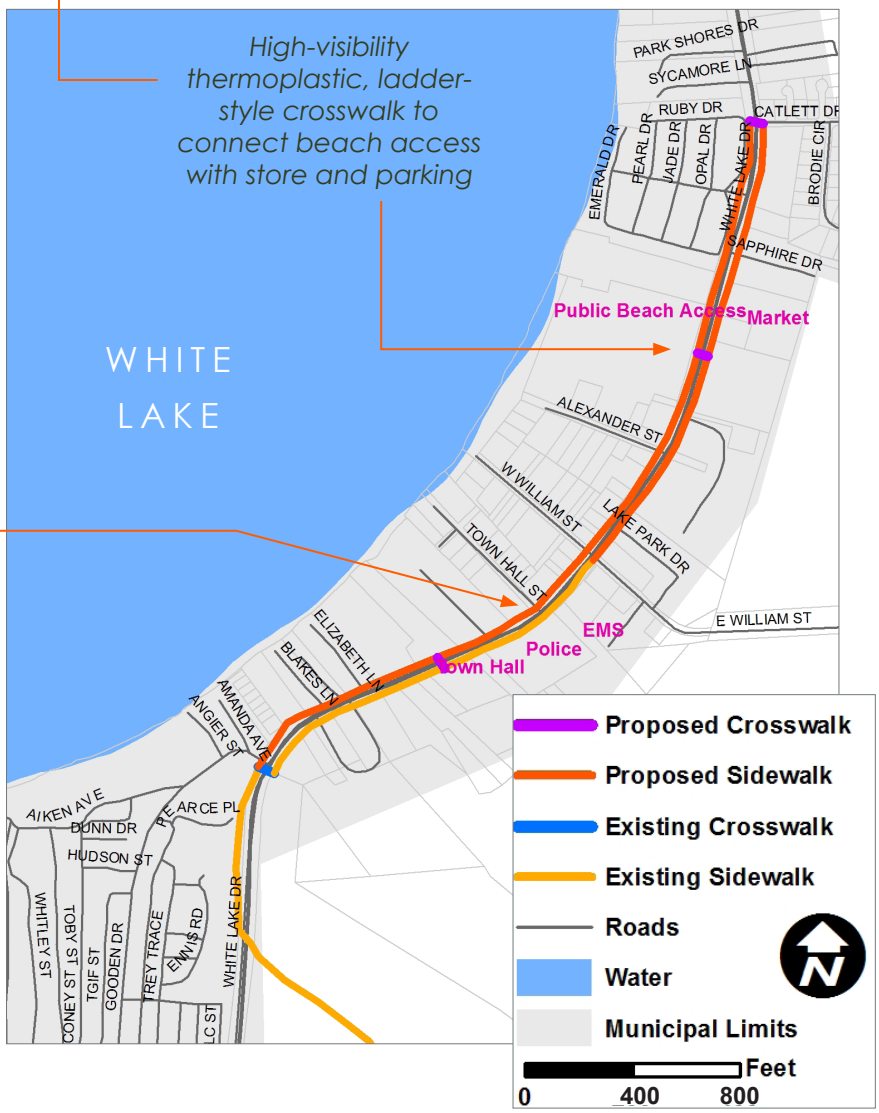
The existing wide shoulder allows space for a new sidewalk with curb and landscaping.

Entrances to the parking lot could be consolidated to reduce conflict points for pedestrians; this would also create a pedestrian only entrance that aligns with the crosswalk.

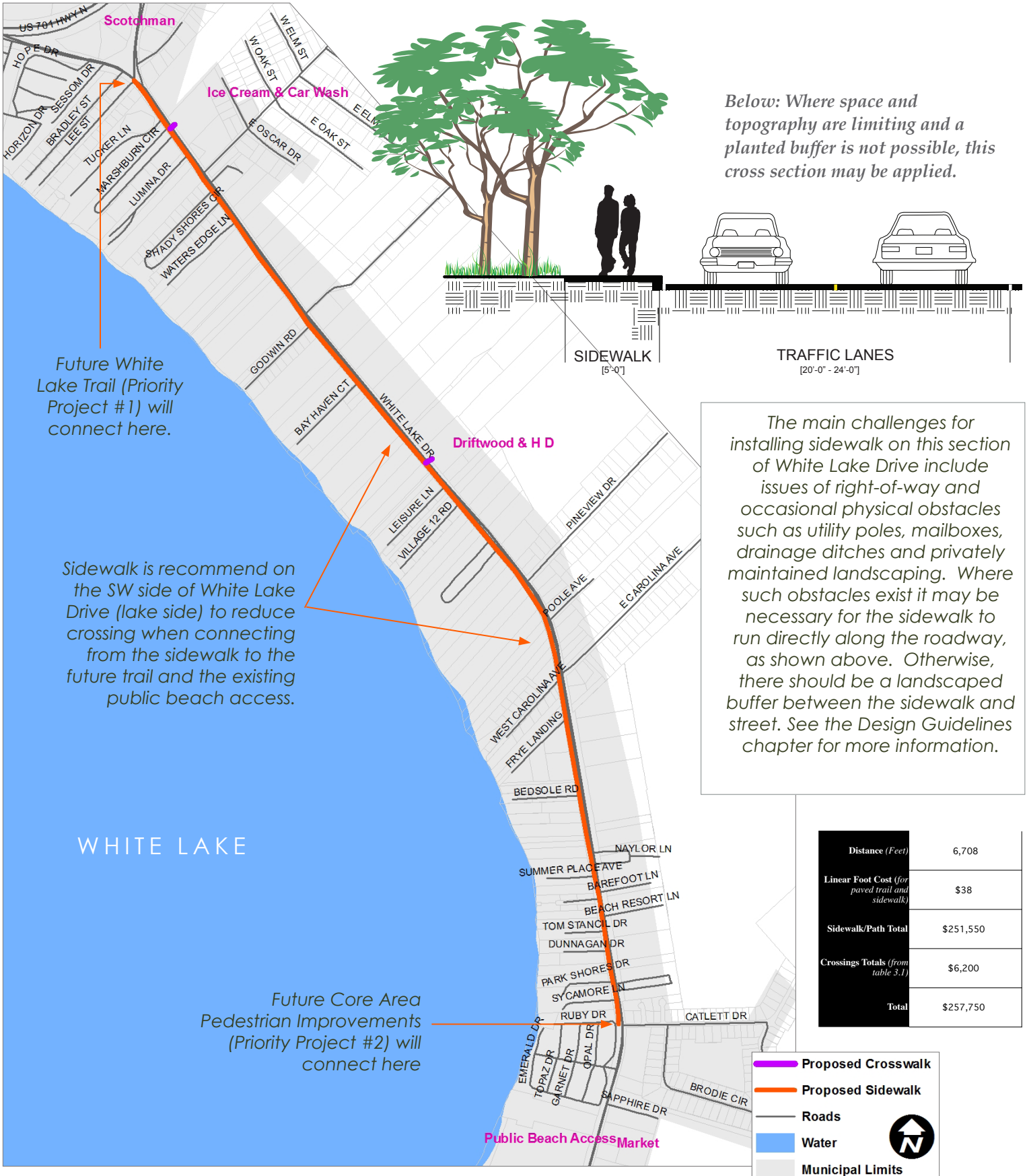
High-visibility thermoplastic, ladder-style crosswalk to connect beach access with store and parking

Colored pavement or textured thermoplastic is recommended for demarcating a pedestrian walkway in front of the EMS station without inhibiting emergency vehicle movement

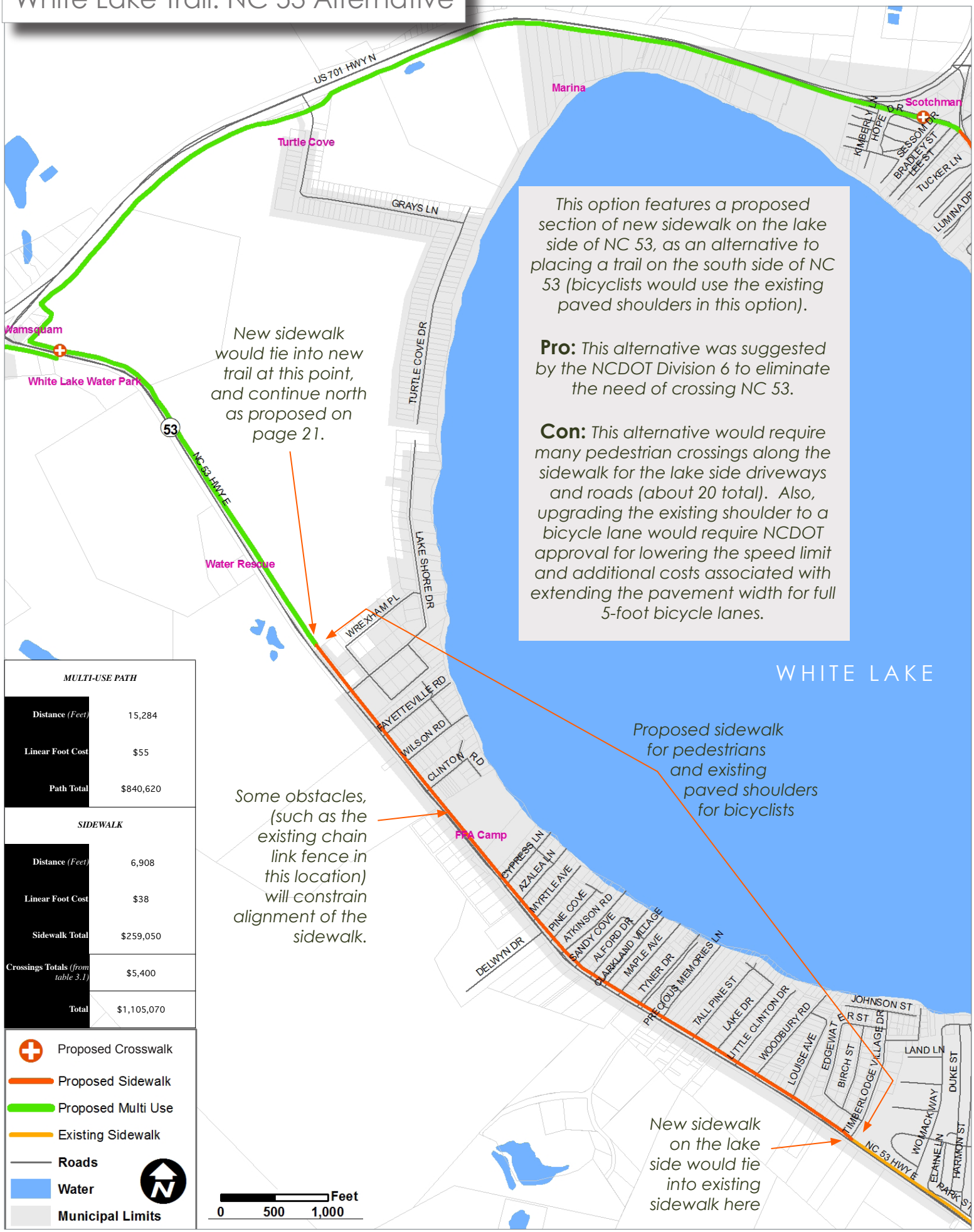
Mid-block crossings should adhere to the NCDOT's Mid-Block Crosswalk practice, yet this does not apply in ALL situations; Seasonal tourist-related spikes in pedestrian use may dictate not applying this policy in full at this location. www.ncdot.org/doh/preconstruct/traffic/teppl/Topics/C-36/C-36_pr.pdf



Priority Project #3: Trail-to-Core Area Connection



White Lake Trail: NC 53 Alternative



This option features a proposed section of new sidewalk on the lake side of NC 53, as an alternative to placing a trail on the south side of NC 53 (bicyclists would use the existing paved shoulders in this option).

Pro: *This alternative was suggested by the NCDOT Division 6 to eliminate the need of crossing NC 53.*

Con: *This alternative would require many pedestrian crossings along the sidewalk for the lake side driveways and roads (about 20 total). Also, upgrading the existing shoulder to a bicycle lane would require NCDOT approval for lowering the speed limit and additional costs associated with extending the pavement width for full 5-foot bicycle lanes.*

New sidewalk would tie into new trail at this point, and continue north as proposed on page 21.

Some obstacles, (such as the existing chain link fence in this location) will constrain alignment of the sidewalk.

Proposed sidewalk for pedestrians and existing paved shoulders for bicyclists

New sidewalk on the lake side would tie into existing sidewalk here

MULTI-USE PATH	
Distance *(Feet)*	15,284
Linear Foot Cost	$55
Path Total	$840,620
SIDEWALK	
Distance *(Feet)*	6,908
Linear Foot Cost	$38
Sidewalk Total	$259,050
Crossings Totals *(from table 3.1)*	$5,400
Total	$1,105,070

Proposed Crosswalk
Proposed Sidewalk
Proposed Multi Use
Existing Sidewalk
Roads
Water
Municipal Limits

4 POLICIES + PROGRAMS

CHAPTER OUTLINE:

OVERVIEW

Meeting the goals of this Plan will not only require new facilities; it also requires implementation of pedestrian-related programs and policies. This chapter outlines recommended programs, policies, and in some cases, policy changes for the Town of White Lake to meet the needs of pedestrians that cannot be met through facility construction alone.

PROGRAM RECOMMENDATIONS AND RESOURCES

Pedestrian-related programs fall into three main categories: education, encouragement, and enforcement. The programs listed below are provided to demonstrate the variety of opportunities that exist for promoting walking and active lifestyles in White Lake. The Town should work with local volunteers and local community organizations to initiate at least one of the following programs or events (whichever are deemed the most appropriate and/or feasible to those organizing) within the first year of adopting this plan.

EDUCATION

BICYCLE AND PEDESTRIAN ADVOCACY GROUP

The Town of White Lake should support the creation of a local bicycle and pedestrian advocacy group. Even though this is a pedestrian plan, the needs and objectives of bicycle and pedestrian advocates are closely related, and stand to benefit mutually from their combined efforts. Local advocacy groups are beneficial resources for promoting safety, providing feedback on opportunities and obstacles within the bicycle and pedestrian system, and coordinating events and outreach campaigns (such as the programs outlined throughout this section). Advocacy groups also play a critical role in encouraging and evaluating the progress of overall plan implementation.

PUBLIC EDUCATION

Educational materials can focus on safe behaviors, rules, and responsibilities. Information may include important pedestrian laws, bulleted keys for safe pedestrian travel, safe motor vehicle operation around pedestrians, and general facility rules and regulations. This safety information is often available for download from national pedestrian advocacy organizations, such as the Pedestrian and Bicycle Information Center website, www.walkinginfo.org.

Safety information is available for download from the Pedestrian and Bicycle Information Center website,

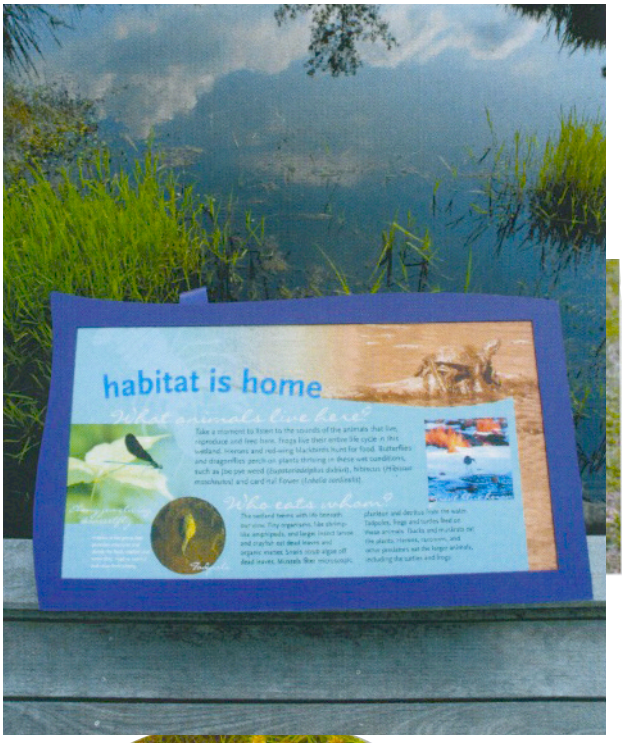
Information can be distributed through brochures, newsletters, newspapers, bumper stickers, and other print media that can be inserted into routine mailings. It can also be posted on municipal websites. Local events should be utilized to distribute information and a representative from the pedestrian advocacy group can answer questions related to pedestrian safety. A booth could also be used to display safety information at various community events.

INTERNAL EDUCATION

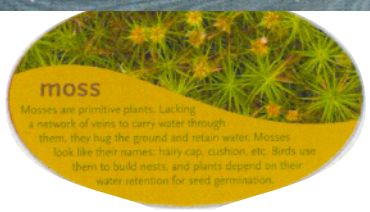
'Internal' education refers to the training of all people who are involved in the actual implementation of the Pedestrian Transportation Plan. Internal training will be essential to institutionalizing pedestrian issues into the everyday operations of engineering, planning, and parks and recreation departments. Key Town staff, members of the local planning board, RPO, NCDOT Division 6 staff, and Bladen County staff should all be included in training sessions whenever possible. This training should cover all aspects of the transportation and development process, including planning, design, development review, construction, and maintenance. This type of 'inreach' can be in the form of brown bag lunches, professional certification programs and attendance at special sessions or conferences. Even simple meetings to go over the Pedestrian Plan and communicate its strategies and objectives can prove useful for staff and newly elected officials that may not have otherwise learned about the plan.

ENVIRONMENTAL AND HISTORIC EDUCATION/ INTERPRETATION

Educational programs and interpretative signage could be developed along future trails and pedestrian routes. Greenway trails provide opportunities for learning outside the classroom. Specific programs that focus on water quality and animal habitat are popular examples. Events such as learning walks about specific animals or insects, tree identification, wildflower walks, environmental issues, stewardship education, and sustainability could be led by area experts. Also, simple educational signage would offer interactive learning opportunities for people who use the trail.



These signage examples provided and designed by Cloud Gehshan Associates at www.cloudgehshan.com.



INTERPRETIVE TRAILS/GUIDED TOURS

An educational component to the pedestrian network could be added by developing historical, cultural, and environmental themes for the facilities. This idea can be adapted to create walking tours throughout the Town, using signage to identify the events, architecture, and culture that make the Town of White Lake unique, such as the natural features of the lake and surrounding area. These tours should be simple to navigate and should stand alone as an amenity. However, brochures can be used to supplement signage with more detailed information and a map of the tour. Other ideas to supplement the signage could be organized "talks" or lectures by local experts.

EDUCATION ACTIONS

- Support the creation of local bicycle and pedestrian advocacy group.
- Consider sponsoring a training session for pedestrian design/review
- Create a self-guided walking tour of downtown historical/cultural sites
- Establish outdoor classrooms utilizing interpretative signage in open space, parks, and on future trails.
- Download a variety of safety materials for distribution to various age groups and at multiple events and locations

EDUCATION RESOURCES

- *America Walks* is a national coalition of local advocacy groups dedicated to promoting walkable communities. Their mission is to foster the development of community-based pedestrian advocacy groups, to educate the public about the benefits of walking, and, when appropriate, to act as a collective voice for walking advocates. They provide a support network for local pedestrian advocacy groups. http://americawalks.org

- *Safe Communities* is a project of the National Highway Traffic Safety Administration (NHTSA). Nine agencies within the U.S. Department of Transportation are working together to promote and implement a safer national transportation system by combining the best injury prevention practices into the Safe Communities approach to serve as a model throughout the nation. http://www.nhtsa.dot.gov/safecommunities

- *Speed Campaign Tool Kit*. The intent of this National Highway Traffic Safety Administration (NHTSA) tool kit is to provide marketing materials, earned media tools, and marketing ideas for communities to distribute to fit local needs and objectives while at the same time partnering with other states, communities, and organizations all across the country on a speed management program. It includes messaging and templates you may choose from to support your speed management initiatives. Free TV and radio materials, posters, billboards, and other media materials can be downloaded here: http://www.nhtsa.gov/speed/toolkit/index.cfm Example posters below:

- *Stepping Out* is an online resource for mature adults to learn about ways to be healthy by walking more often, and walking safely. www.nhtsa.dot.gov/people/injury/olddrive/SteppingOut/index.html

- '*Pedestrian Fatalities Related to School Travel*' is a fact sheet pertaining to school age children (NHTSA). www.nhtsa.gov/gtss/kit/pedestrian.html

- *Safe Kids Worldwide* is a global network of organizations whose mission is to prevent accidental childhood injury, a leading killer of children 14 and under. More than 450 coalitions in 15 countries bring together health and safety experts, educators, corporations, foundations, governments and volunteers to educate and protect families. Visit their website to receive information about programs, involving media events, device distribution and hands-on educational activities for kids and their families. www.safekids.org/

- *Rules of the Road for Grandchildren: Safety Tips* is an information website for grand parenting. If you are a grandparent, you can play an important role in teaching your grandchildren the "rules of the road." AARP. www.aarp.org/confacts/grandparents/rulesroad.html

- '*Streets in America are Unsafe and Unforgiving for Kids*'. Article by the Pedestrian Safety Roadshow. U.S. Department of Transportation. Federal Highway Administration. www.tfhrc.gov/safety/pedbike/articles/unsafe.htm

- '*Focusing on the Child Pedestrian.*' Pedestrian information related to children from the FHWA. http://safety.fhwa.dot.gov/roaduser/pdf/PedFacts.pdf

- *Eat Smart, Move More* is a statewide movement that promotes increased opportunities for healthy eating and physical activity wherever people live, learn, earn, play and pray. www.eatsmartmovemorenc.com/

- *NCDOT Division of Bicycle and Pedestrian Transportation* provides significant information related to pedestrian programming. www.ncdot.org/transit/bicycle/

ENCOURAGEMENT

SCHOOL PROGRAMS

Many programs focus on developing safer pedestrian facilities around schools. Programs can be adopted by parents and schools to provide initiatives for walking.

Community leaders, parents and schools across the U.S. are using Safe Routes to School programs to encourage and enable more children to safely walk and bike to school. The National Center for Safe Routes to School aims to assist these communities in developing successful Safe Routes programs and strategies. The Center offers a centralized resource of information on how to start and sustain a Safe Routes to School program, case studies of successful programs as well as many other resources for training and technical assistance. For more information on Safe Routes to School, refer to the 'Encouragement Resources' section below.

AWARENESS DAYS/EVENTS

A specific day of the year can be devoted to a theme to raise awareness and celebrate issues relating to that theme. A greenway and its amenities can serve as a venue for events that will put the greenway on display for the community. Major holidays, such as July 4th, and popular local events serve as excellent opportunities to include pedestrian information distribution. The following are examples of other national events that can be used to increase use of pedestrian facilities:

WALK TO WORK DAY/INTERNATIONAL CAR FREE DAY

(September 22) Designate one day a year for people to walk to work to help advance programs, promote active living, and raise awareness for environmental issues. Walk to Work Day can be at the end of an entire week or month of pedestrian promotional activities, including fitness expos, walking and jogging group activities, running and bicycling races and rides, etc.

"STRIVE NOT TO DRIVE DAY"

This event example, from the Town of Black Mountain, NC, is an annual event to celebrate and promote the Town's pedestrian achievements for the year throughout their region. Awards for pedestrian commuters, as well as booths, contests, and other events are organized through their local MPO Bicycle and Pedestrian Task Force and the Land-of-Sky Regional Council. A similar event could be held in White Lake, as the Pedestrian Plan is implemented.

NATIONAL TRAILS DAY

This event is held every year in June. Other events, competitions, races, and tours can be held simultaneously to promote trails in White Lake.

EARTH DAY

Earth Day is April 22nd every year and offers an opportunity to focus on helping the environment. Efforts can be made to encourage people to help the environment by walking to destinations and staying out of their vehicles. This provides an excellent opportunity to educate people of all ages.

USE FACILITIES TO PROMOTE OTHER CAUSES

Pedestrian facilities, especially trails, could be used for events that promote other causes, such as health awareness. Not only does the event raise money/publicity for a specific cause, but it encourages and promotes healthy living and an active lifestyle, while raising awareness for pedestrian activities. Non-profit organizations such as the American Cancer Society, American Heart Association, and the Red Cross sponsor events such as Breast Cancer Walk, Diabetes Walk, etc.

PEDESTRIAN ACTIVITIES/ PROMOTION WITHIN LOCAL ORGANIZATIONS

The Town of White Lake has numerous organizations that could help to promote pedestrian activities (e.g. the local Chamber of Commerce, local schools/PTAs, etc). Education, enforcement, and encouragement programs can be advertised and discussed in local organization newsletters, seminars, and meetings. Such organizations could even organize their own group walks, trail clean-ups, and other activities listed in this section.

ART IN THE LANDSCAPE

The inclusion of art along pedestrian corridors and future trails would encourage use of facilities and provide a place for artwork and healthy expression to occur. Artwork could be displayed in a variety of ways and through an assortment of materials. Sculpture gardens could be arranged as an outdoor museum. Art through movement and expression could be displayed during certain hours during the day or during seasonal events. An "Art Walk" could be established as an event featuring destinations throughout the Town that display local art. Artwork can be provided by local schools, special interest clubs and organizations, or donated in honor or memory of someone.

WALKING/RUNNING CLUBS

Neighborhoods, local groups, or businesses could promote walking or running clubs for local residents or employees to meet at a designated area and exercise on certain days before or after work, during lunch breaks, or anytime that works for the group. This informal group could be advertised on local bulletin or information boards. These clubs could be specialized to attract different interest groups. Examples include:

- Relay for Life (cancer support)
- Mother's Morning Club (mom's with strollers)
- Walking Wednesdays (senior groups)
- Lunch Bunch (workers who run during their lunch hour)

ADOPT-A-TRAIL

Local clubs and organizations provide great volunteer services for maintaining and patrolling trails. This idea could be extended to follow tour routes or specified streets/sidewalks. A sign to recognize the club or organization could be posted as an incentive to sustain high quality volunteer service. The Boy Scouts of America serve as a good model for participation in this type of program.

REVENUE GENERATING EVENTS

The Town of White Lake should consider holding events that can help fund future facilities. Program and event ideas that could be used to generate revenue in White Lake include:

- Races/triathlons (fees and/or donations)
- Educational walks/Nature walks/Historic walks (fees and/or donations)
- Fund-raisers including dinners/galas
- Concerts (fees and/or donations)
- Events coincident with other local events such as fairs, festivals, historic/folk events, etc.

ENCOURAGEMENT ACTIONS

- Encourage children to walk to school, safely, through a combination of programs, listed under encouragement resources
- Establish awareness days
- Encourage the establishment of walking clubs
- Use pedestrian facilities, particularly trails, to promote causes and hold special events for causes
- Utilize future greenways for artwork and plantings

ENCOURAGEMENT RESOURCES

- *Safe Routes to School* is a national program with $612 million dedicated from Congress from 2005 to 2009. Local Safe Routes to School programs are sustained by parents, community leaders, and citizens to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school. Recently, the state of North Carolina has started the NC Safe Routes to School Program based off of the national program. The state has funding for infrastructure improvements within 2 miles of schools. This funding can also be used towards the development of school related programs to improve safety and walkability initiatives. The state requires the completion of a competitive application to apply for funding and a workshop at the school to determine what improvements are needed. www.saferoutesinfo.org

- *National Walk our Children to School Day* is usually held in October with the objective to encourage adults to teach children to practice safe pedestrian behavior, to identify safe routes to school, and to remind everyone of the health benefits of walking. To register walking events in White Lake, go to the main webpage, and follow the International Walk to School links: www.walktoschool-usa.org

- *Walk a Child to School in North Carolina*. Agrowing number of community groups throughout the nation, such as health professionals, 'Smart Growth' advocates, traffic safety groups, local PTAs, and elected officials, are promoting walking to school initiatives. In North Carolina, Walk a Child to School Programs have gained a foothold and are growing each year. To date more than 5,000 students in 12 communities in the state have participated. www.walktoschool.org

- *'Preventing Pedestrian Crashes: Preschool/Elementary School Children'* provides information to parents on pedestrian risks for preschool and elementary school children. Information about the Safe and Sober Campaign is available on the NHTSAwebsite. www.nhtsa.dot.gov/people/outreach/safesobr/15qp/web/sbprevent.html

- *Kidswalk-to-School* is a resource guide to help communities develop and implement a year-long walk-to-school initiative; sponsored by the Centers for Disease Control and Prevention. www.cdc.gov/nccdphp/dnpa/kidswalk/

ENFORCEMENT

MOTORIST ENFORCEMENT

Based on crash data analysis and observed patterns of behavior, local police can use targeted enforcement to focus on key issues such as motorists speeding, not yielding to pedestrians in crosswalks, parking on sidewalks, etc. Sidewalk parking, for example, is often not enforced but should be in order to maintain pedestrian accessibility, avoid maintenance issues, and comply with local ordinances. All of these key issues should be targeted and enforced consistently. The goal is for pedestrians and motorists to recognize and respect each other's rights on the roadway.

The NCDOT Division of Bicycle and Pedestrian Transportation funded a study on pedestrian issues, including school zone safety, and decided to establish a consistent training program for law enforcement officers responsible for school crossing guards. According to the office of the North Carolina Attorney General, school crossing guards may be considered traffic control officers when proper training is provided as specified in GS20-114.1. For more information visit www.ncdot.gov/bikeped/researchreports/

PEDESTRIAN ENFORCEMENT

Observations made by local trail and pedestrian facility users can help to identify conflicts or issues that require attention. To maintain proper use of trail facilities, volunteers could patrol trails, particularly on the most popular trails and on days of heavy use. The volunteer patrol can report suspicious or unlawful activity, as well as answer any questions a trail user may have. The volunteer patrol could be a responsibility of a pedestrian advocacy group or a neighborhood crime watch group.

ENFORCEMENT ACTIONS

- Local police should use targeted enforcement to focus on key issues such as motorists speeding, not yielding to pedestrians in crosswalks, parking on sidewalks, etc.
- Require all crossing guards to complete an NCDOT Crossing Guard Training Program
- Establish a crossing guard program for peak school hours and for peak tourist pedestrian activity near beach access areas.

- Develop a simple brochure that outlines local leash laws, to be distributed as warnings from police officers and as education tools at pet stores and veterinarian offices. This may help to decease incidents where pedestrians are intimidated or even harmed by unleashed dogs.

ENFORCEMENT RESOURCES

- *NCDOT School Crossing Guard Program: www.ncdot.gov/bikeped/about/training/school_crossing_guard/*

- *NCDOT's A Guide to North Carolina Bicycle and Pedestrian Laws.* For an online resource guide on laws related to pedestrian and bicycle safety, visit: *www.ncdot.gov/bikeped/lawspolicies/*

PEDESTRIAN POLICIES

While the physical recommendations described in this Plan represent an overall pedestrian network, strong pedestrian-oriented policies and regulations are also necessary to ensure these facilities are developed, especially when new development takes place. These recommended policy statements would help the Town of White Lake achieve its vision of becoming a pedestrian-friendly community. Town planning staff should become familiar with these policies and regulations to ensure the full suite of policy tools are used and enforced. Further tools to initiate pedestrian development are described in Chapter 5 (pages 43-46) and in Appendix D: State & Federal Policies.

CURRENT & RELATED TOWN POLICIES

White Lake Subdivision Regulations (2009):

- Right-of-Way Widths shall be no less than 45 feet for streets without curb and gutter. Streets with curb and gutter provided shall have a minimum right-of-way width of 40 feet. Section 5-2.4

- Pedestrian crosswalks shall be located where needed as deemed necessary by the Planning Board and Board of Commissioners Section 5-2.4

- Provisions for Dedication of Land for Multi-Use Path System or Public Access Thereto:

  (A) Where a proposed subdivision includes any portion of land shown on the Town's officially adopted Multi-Use Path Plan, the Planning Board and Board of Commissioners may require that such land be dedicated to the Town for the greenway system.

  (B) Where a proposed subdivision does not contain land shown on the Town's officially adopted Multi-Use Path Plan, but the tract to be subdivided directly adjoins the land that contains, or will in the future contain, a portion of the Town's multi-use path system, then a public access easement of no less than 15 feet in width shall be platted from the public street in the land to be subdivided to the boundary of the land containing the multi-use path. Section 5-4.1

POLICY RECOMMENDATIONS

Recommended policy statements are provided below for consideration. Policy statements that require pedestrian facilities with development must be somewhat flexible and practical within regulations for physical restrictions. All decisions need to be environmentally sensitive. Sidewalk locations and widths may need to be modified on a case-by-case basis. There must be a proven environmental constraint for pedestrian modifications.

- Require all development within the Town limits to provide adequate sidewalks, crosswalks, and pedestrian facilities.

- Encourage access management of driveways and parking lots that reduces conflict points for pedestrians and bicyclists. Prohibit new businesses from building parking lots that blend into the edge of pavement with no pedestrian accommodations; for existing circumstances, consider delineating pedestrian space with painted concrete, stamped asphalt, or a similar surface treatment that allows for automobile access while identifying the pedestrian right-of-way.

- Maximize the buffer space between the sidewalk and the curb and gutter within the available right-of-way. Four feet is suggested as a minimum on major thoroughfares, but could be decreased in areas with slower and lower volume automobile traffic. Larger buffers are preferred for street tree health and pedestrian comfort. Suggested width is flexible related to environmental constraint, especially in areas where a striped shoulder for bicycling is preferable to extra buffer width.

- Encourage and/or require private residences and business owners to keep their area in and around the sidewalk free of debris, litter, garbage cans, and parked vehicles.

- Accommodate pedestrians and bicyclists on any future roadway interchanges and on roadways that are impacted by future interchanges (except where they are prohibited by law).

- Require safe crosswalks and sidewalks on both sides of roads surrounding schools—*if and when* schools are located in the Town of White Lake.

- Define 'greenways' as part of the Town of White Lake's public infrastructure. Greenways are public infrastructure that provides important functions to not only offer transportation alternatives, but to protect public health safety and welfare. Within flood prone landscapes, greenways offer the highest and best use of floodplain land, mitigate the impacts from frequent flooding and offer public utility agencies access to floodplains for inspection, monitoring and management. Greenways filter pollutants from stormwater and provide an essential habitat for native vegetation that serves to cleanse water of sediment. Greenway trails provide viable routes of travel for cyclists and pedestrians and serve as alternative transportation corridors for urban and suburban commuters. Greenways serve the health and wellness needs of our community, providing close-to-home access to quality outdoor environments where residents can participate in doctor prescribed or self-initiated health and wellness programs. All of these functions make greenways a vital part of community infrastructure.

White Lake

CHAPTER OUTLINE:

OVERVIEW

The primary barrier to pedestrian facilities in White Lake—such as sidewalks, safe intersections, and greenways—is funding. White Lake is a small town with a small tax base and has a high influx of seasonal tourist population due to the lake being within the town limits. This financial barrier is precisely the rationale to prioritize the pedestrian improvements with the greatest impact for the fewest dollars.

Successful implementation will also require the dedication of Town staff, the creation of a Bicycle and Pedestrian Sub-Committee, and the continued support of local advocates. This chapter will serve as a simple guide with key action steps, staffing recommendations, an evaluation and monitoring process, methods of pedestrian facility development and greenway acquisition.

KEY ACTION STEPS

These following steps are integral to achieving the goals and vision of this Plan. As guiding recommendations and the clearest representation of specific items to accomplish, they should be referred to often. With the exception of the first step, there is no particular order in which these should be addressed.

ADOPT THIS PLAN.

Through adoption, the Plan becomes a legitimate planning document of the Town. Adoption shows that the Town of White Lake has undergone a successful, supported planning process. The Town can then use this document to improve it's chances in receiving funding through NCDOT and other resources. The Town Board and Planning Board should become knowledgeable of this Plan and support pedestrian-related policies. Finally, this Plan should also be integrated into future Town of White Lake planning documents.

BEGIN TOP PRIORITY PROJECTS.

Steering Committee input, public input, and criteria such as tourist's pedestrian activity and field research were used to develop the priority projects (see Chapter 3, page 20). These high priority projects should be supported by a combination of grants, local funding, and the local Capital Improvement Program (CIP).

IMPROVE AND ENFORCE TOWN REGULATIONS.

To ensure future development provides pedestrian facilities and improves pedestrian friendliness, regulations should be updated and enforced. These policy recommendations are listed at the end of Chapter 4, pages 37-38. It should be the goal of the Town to update zoning and subdivision regulations as soon as possible and to enforce these. All pedestrian-related regulations should be subject to case-by-case environmental evaluation.

CREATE A BICYCLE AND PEDESTRIAN SUB-COMMITTEE

Many communities across the State have commissions who advocate for the needs of local bicyclists and pedestrians. The Town of White Lake should create a sub-committee of the planning board to embrace an advocacy role for bicycle and pedestrian issues. The committee should help coordinate the implementation of this Plan, develop programs, listen to community needs, promote the pedestrian network, and keep positive momentum going. Consider two to three people from the planning board, one town staff person, and if possible two people from the Pedestrian Plan Steering Committee.

The committee can also help monitor the progress of the Town and NCDOT as they develop new facilities and programs. This group can assist in researching and applying for trail and pedestrian-related construction grants. Coordination with NCDOT, specifically the Division of Bicycle and Pedestrian Transportation and the local Division 6 office, will prove critical if this plan is to be implemented successfully.

TAKE ADVANTAGE OF ALL OPPORTUNITIES

While it is ideal to develop pedestrian facilities in order of priority, it is wise to also create facilities when opportunity arises. Some of the most cost-effective opportunities to provide pedestrian facilities are during routine roadway construction, reconstruction, and repaving projects. A new commercial development or a roadway widening project, for instance, would provide the means to stripe crosswalks, build sidewalks or trails as a component of an existing effort, saving costs.

SEEK MULTIPLE FUNDING SOURCES AND FACILITY DEVELOPMENT OPTIONS

Multiple approaches should be taken to support pedestrian facility development and programming. It is important to secure the funding necessary to undertake the short-term, top priority projects but also to develop a long term funding strategy to allow continued development of the overall system. Capital and Powell Bill funds for sidewalk, crosswalk, and greenway construction should be set aside every year, *even if only for a small amount* (small amounts of local funding can be matched to outside funding sources). A variety of local, state, and federal options and sources exist and should be pursued. These funding options are described in Appendix B of this plan. Other methods of pedestrian facility development and greenway acquisition that are efficient and cost-effective are described later in this chapter.

DEVELOP PEDESTRIAN PROGRAMMING.

Programming recommendations described in Chapter 4 can help educate and encourage users, while also enforcing pedestrian regulations (see Actions listed pages 28, 33, and 35). The proposed Bicycle and Pedestrian Sub-committee could help spearhead some of these efforts. Examples include encouraging the creation of walking clubs that walk regularly for exercise and social visits; setting up a trained crossing guard or police officer to help pedestrian cross White Lake Drive during peak tourist hours and times of the year; and traffic law enforcement that targets known areas of conflict for pedestrians and vehicles.

ENSURE PLANNING EFFORTS ARE INTEGRATED REGIONALLY.

Combining resources and efforts for pedestrian planning and trail planning with surrounding municipalities, regional entities, and stakeholders is mutually beneficial to all parties involved. Regional, long-distance trails often spark the most excitement, use, and tourism. The Town should remain coordinated with Bladen County and neighboring municipalities on regional trail initiatives. It is important to stay aware and communicative with other municipal, county, state, and NCDOT efforts to ensure the Town takes advantage of funding opportunities and support. A Bicycle and Pedestrian Sub-Committee member, for example, could have the responsibility of staying in tune and updating the Town on regional trail initiatives.

After adoption by the Town, the Town should ensure that this document is recognized by regional transportation planning agencies, such as NCDOT Division 6, the Mid-Carolina Council of Governments, the Fayetteville Metropolitan Planning Organization, and the Mid-Carolina Council of Governments.

The plan's recommendations should be programmed into the official work schedule and planning of these organizations.

STAFFING

TOWN OF WHITE LAKE

The Town's Administration Director, Planning Board and Board of Commissioners are all responsible for the implementation of pedestrian planning in White Lake. The Town will continue to spearhead initiatives to manifest tangible, on the ground results, based on the recommendations of this plan.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NCDOT Division 6 maintains the state-owned roads in White Lake, affecting the pedestrian facilities (or lack thereof) on much of White Lake's roadway environment. Recommendations for pedestrian facilities on NCDOT roads will have to be carried out through a coordinated effort between the Town of White Lake and NCDOT Division 6. Some technical assistance could also be provided through NCDOT's Division of Bicycle and Pedestrian Transportation (the Town should be proactive in seeking such assistance, and should refer the departments back to this plan whenever possible).

POLICE DEPARTMENT

The White Lake Police Department plays a vital role in pedestrian safety. All local police officers should be educated about North Carolina's pedestrian laws to promote positive interactions between pedestrians and motorists. The Guide to North Carolina Bicycle and Pedestrian Laws, written by the NCDOT Division of Bicycle and Pedestrian Transportation, should be distributed to local law enforcement. The Police Department should continue to specifically target know areas of high pedestrian traffic during peak times of the tourist season.

For an online resource guide on laws related to pedestrian and bicycle safety, visit: www.ncdot.gov/bikeped/lawspolicies/

VOLUNTEERS

Services from volunteers, student labor, and seniors, or donations of material and equipment may be provided in-kind, to offset construction and maintenance costs. Formalized maintenance agreements, such as adopt-a-trail/greenway or adopt-a-highway can be used to provide a regulated service agreement with volunteers. Other efforts and projects can be coordinated as needed with senior class projects, scout projects, interested organizations, clubs or a neighborhood's community service to provide for many of the program ideas outlined in Chapter 4 of this plan. Advantages of utilizing volunteers include reduced or donated planning and construction costs, community pride and personal connections to the Town's greenway and pedestrian networks.

PERFORMANCE MEASURES (EVALUATION AND MONITORING)

The Town of White Lake should establish performance measures to benchmark progress towards achieving the vision of this Plan. These performance measures should be stated in an official report within two years after the Plan is adopted. Performance measures could address the following aspects of pedestrian transportation and recreation in White Lake:

- *Safety.* Measures of pedestrian crashes and injuries or speeding in Town.

- *Facilities.* Measures of how many pedestrian facilities have been funded and constructed since the Plan's adoption.

- *Education, Encouragement and Enforcement.* Measures of the number of people who have participated in part of a pedestrian program since the Plan's adoption.

PEDESTRIAN FACILITY DEVELOPMENT

This section describes different construction methods for the proposed pedestrian facilities outlined in Chapter 3. Note that many types of transportation facility construction and maintenance projects can be used to create new pedestrian facilities. It is much more cost-effective to provide pedestrian facilities during roadway construction and re-construction projects than to initiate the improvements later as "retrofit" projects.

To take advantage of upcoming opportunities and to incorporate pedestrian facilities into routine transportation and utility projects, the Town should keep track of NCDOT's projects and any other local transportation improvements. While doing this, s/he should be aware of the different procedures for state and local roads and interstates.

NCDOT TRANSPORTATION IMPROVEMENT PROGRAM (TIP) PROCESS

The Transportation Improvement Program (TIP) is an ongoing program at NCDOT which includes a process asking localities to present their transportation needs to state government. Pedestrian facility and safety needs are an important part of this process. The primary NCDOT source for developing pedestrian and bike facilities is securing identification of a project in the State Transportation Improvement Program (STIP). Every two years projects are submitted by regional planning organizations (metropolitan planning organizations (MPO) and rural planning organizations (RPO)) throughout the

state. Submitted bike and pedestrian projects are prioritized by the Division of Bike and Pedestrian Transportation staff. High priority projects will be used to populate the 5-Year Work Program and the delivery STIP. Please see this site – http://www.ncdot.gov/performance/reform/ – for further information.

There are two types of projects in the TIP: incidental and independent. Incidental projects are those that can be incorporated into a scheduled roadway improvement project. Independent are those that can standalone such as a greenway, not related to a particular roadway.

The Town of White Lake, guided by the priority projects within this plan, should present pedestrian projects along State roads to the Mid-Carolina Rural Planning Organization and State. Local requests for small pedestrian projects, such as crosswalks and smaller segments of sidewalk, can be directed to the RPO or the local NCDOT Division 6 office.

LOCAL ROADWAY CONSTRUCTION AND RECONSTRUCTION

Pedestrians should be accommodated any time a new road is constructed or an existing road is reconstructed. All new roads with moderate to heavy motor vehicle traffic should have sidewalks and safe intersections. The Town of White Lake should take advantage of any upcoming construction projects, including roadway projects outlined in local comprehensive and transportation plans. Also, case law surrounding the ADA has found that roadway resurfacing constitutes an alteration, which requires the addition of curb ramps at intersections where they do not yet exist.

RESIDENTIAL AND COMMERCIAL DEVELOPMENT

As detailed in Chapter 4, the construction of sidewalks and safe crosswalks should be required during development. Construction of pedestrian facilities that corresponds with site construction is more cost-effective than retro-fitting. In commercial development, emphasis should also be focused on safe pedestrian access into, within, and through large parking lots. This ensures the future growth of the pedestrian network and the development of safe communities.

RETROFIT ROADWAYS WITH NEW PEDESTRIAN FACILITIES

For priority pedestrian projects, it may be necessary to add new facilities before a roadway is scheduled to be reconstructed. In some places, it may be relatively easy to add sidewalk segments to fill gaps, but other segments may require removing trees, relocating landscaping or fences, re-grading ditches or cut and fill sections.

BRIDGE CONSTRUCTION OR REPLACEMENT

Provisions should always be made to include a walking facility as a part of vehicular bridges, underpasses, or tunnels, especially if the facility is part of the Pedestrian Network. All new or replacement bridges should accommodate pedestrians with wide sidewalks on both sides of the bridge. Even though bridge construction and replacement does not occur regularly (especially in White Lake), it is important to consider these policies for long-term pedestrian planning. NCDOT bridge policy states that sidewalks shall be included on new NCDOT road bridges with curb and gutter approach roadways.

SIGNAGE AND WAYFINDING PROJECTS

When more pedestrian facilities are constructed, the Town should consider developing and adopting a signage style policy and procedure, to be applied throughout the entire community, to make it easier for people to find destinations. Mile markers or signs for the future trail loop are one example of these wayfinding signs, and they can be installed along routes as a part of a comprehensive wayfinding improvement project. See the Design Guidelines chapter for more on pedestrian signs and wayfinding. Also, for a step-by-step guide to help non-professionals participate in the process of developing and designing a signage system, as well as information on the range of signage types, visit the Project for Public Places website: www.pps.org/info/amenities_bb/signage_guide

EXISTING TOWN EASEMENTS

The Town may have several existing easements offering an opportunity for greenway facilities. Sewer easements are very commonly used for this purpose offering cleared and graded corridors that easily accommodate trails. This approach avoids the difficulties associated with acquiring land, and it utilizes the Town's existing resources. Refer to the appendix for an example sewer-greenway trail easement.

GREENWAY ACQUISITION

Since not all greenways can be built on existing Town easements, land acquisition is an important component of greenway development. It will be necessary to work with landowners and future development projects. Land acquisition and resource protection methods should be strategic, efficient, and respectful. Non-profit land protection agencies, land trusts, and/or environmental organizations can assist when attempting to acquire or manage property. These entities often have a great deal of experience selling the greenway benefits of conservation. Because these types of organizations do not have the power to condemn land or the power to tax, they often have excellent personal and professional relations with local landowners. Many options are available to obtain different degrees of control and different ownership relationships to regulate resource use. Providing educational material to local landowners and developers about the benefits of greenways and land/easement donations is an excellent means to stimulate greenway acquisition. The following is a list of potential conservation tools, developing partnerships, development regulations, land management techniques, and acquisition/donation. A more detailed look at each of these tools is provided in this Plan's appendix.

PARTNERSHIPS

Partnerships with land trusts, local developers, and private land managers can assist the Town of White Lake in developing greenway facilities.

- Land Trusts (example: The North Carolina Coastal Land Trust; www.coastallandtrust.org)
- Private Land Managers

REGULATORY METHODS

This type of resource protection is used to shape the use and development of the land without transferring or selling the land. The rules for this type of tool are established and enforced by a governing body.

- Exactions (Development/Impact Fee, Mandatory Dedications, Fee in Lieu)
- Growth Management Measures (Adequate Public Facilities Ordinances/Concurrency)
- Performance Zoning
- Incentive Zoning (Dedication or Density Transfers)
- Conservation Zoning (Buffer or Transition Zones)
- Overlay Zoning

- Negotiated Dedications
- Planned Unit Development
- Cluster Development

LAND MANAGEMENT

This type of resource protection refers to developing agreements and/or management plans for public use and greenway easements through private property. This method helps conserve the resources of an open space or greenway parcel or easement.

- Management Plans
- Conservation Easement
- Preservation Easement
- Public Use Easement

ACQUISITION

Land acquisition is a method used to acquire property rights to protect resources or to allow access and free movement of users on a property. This type of method is permanent. Acquisition methods can be divided into two categories: 1) landowners retain ownership of the land and preserve a resource through an easement or other mutual agreement, or 2) land ownership and management is transferred or donated from a landowner to a conservation agency (local government, land trust, or other preservation organization.)

- Donation (Tax Incentives)
- Fee Simple Purchase
- Easement Purchase
- Lease Back Purchase
- Bargain Sale
- Installment Sale
- Right of First Refusal
- Purchase of Development Rights
- Land Banking
- Condemnation

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White Lake Town Hall

DESIGN GUIDELINES 6

CHAPTER OUTLINE:

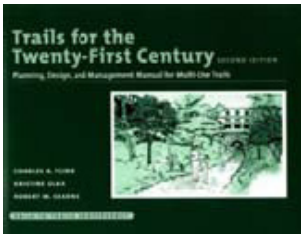
OVERVIEW

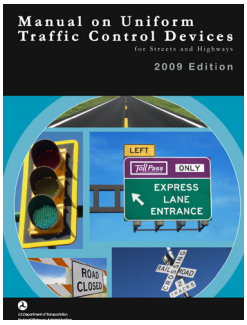
These recommended guidelines originate from and adhere to national design standards as defined by the American Association of State Highway Transportation Officials (AASHTO), the Americans with Disabilities Act (ADA), the Federal Highway Administration (FHWA) Pedestrian Facilities Users Guide, the Manual on Uniform Traffic Control Devices (MUTCD), and the NCDOT. Another major source of information in this chapter is the Pedestrian and Bicycle Information Center, found online at http://www.walkinginfo.org. Should the national standards be revised in the future and result in discrepancies with this chapter, the national standards should prevail for all design decisions. A qualified engineer or landscape architect should be consulted for the most up to date and accurate cost estimates.

The sections below serve as an inventory of pedestrian design elements/treatments and provide guidelines for their development. These treatments and design guidelines are important because they represent minimum standards for creating a pedestrian-friendly, safe, accessible community. The guidelines are not, however, a substitute for a more thorough evaluation by a landscape architect or engineer upon implementation of facility improvements. Some improvements may also require cooperation with the NCDOT for specific design solutions.

Pedestrian and Bicycle Information Center

AASHTO
THE VOICE OF TRANSPORTATION





The Pedestrian and Bicyle Information Center, AASHTO, the MUTCD, nationally recognized trail standards, and other sources have all informed the content of this chapter.

SIDEWALKS AND WALKWAYS

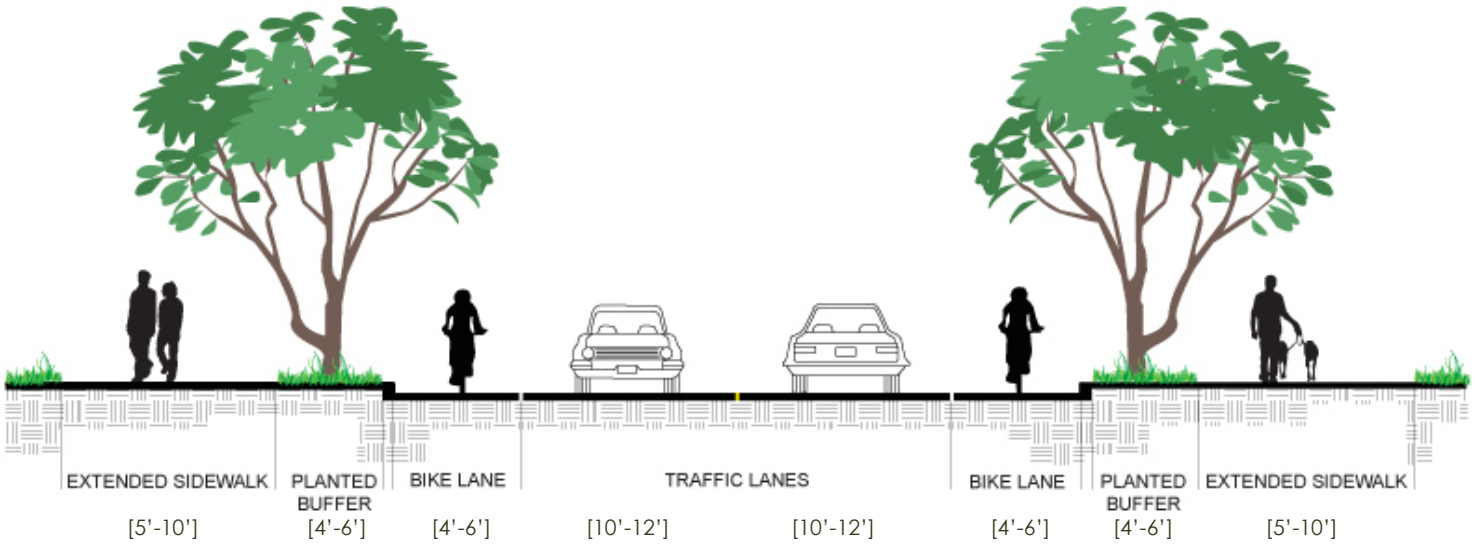
Sidewalks and walkways are extremely important public right-of-way components often times adjacent to, but separate from automobile traffic. In many ways, they act as the seam between private residences, stores, businesses, and the street.

There are a number of options for different settings, for both downtown and more rural and/or suburban areas. From a wide promenade to, in the case of a more rural environment, a simple asphalt or crushed stone path next to a secondary road, walkway form and topography can vary greatly. In general, sidewalks are constructed of concrete although there are some successful examples where other materials such as asphalt, crushed stone, or other slip resistant material have been used. The width of the walkways should correspond to the conditions present in any given location (i.e. level of pedestrian traffic, building setbacks, or other important natural or cultural features). FHWA (Federal Highway Administration) and the Institute of Transportation Engineers both suggest five feet as the minimum width for a sidewalk. This is considered ample room for two people to walk abreast or for two pedestrians to pass each other. Often downtown areas, near schools, transit stops, or other areas of high pedestrian activity call for much wider sidewalks.

A well designed residential sidewalk will have a width of at least five feet. (Image from http://www.walkinginfo.org)

Sidewalk with a vegetated buffer zone. Notice the sense of enclosure created by the large canopy street trees. (Image from http://www.walkinginfo.org)

Below: Typical street with bike lanes and adjacent sidewalk.



SIDEWALKS AND WALKWAY GUIDELINES:

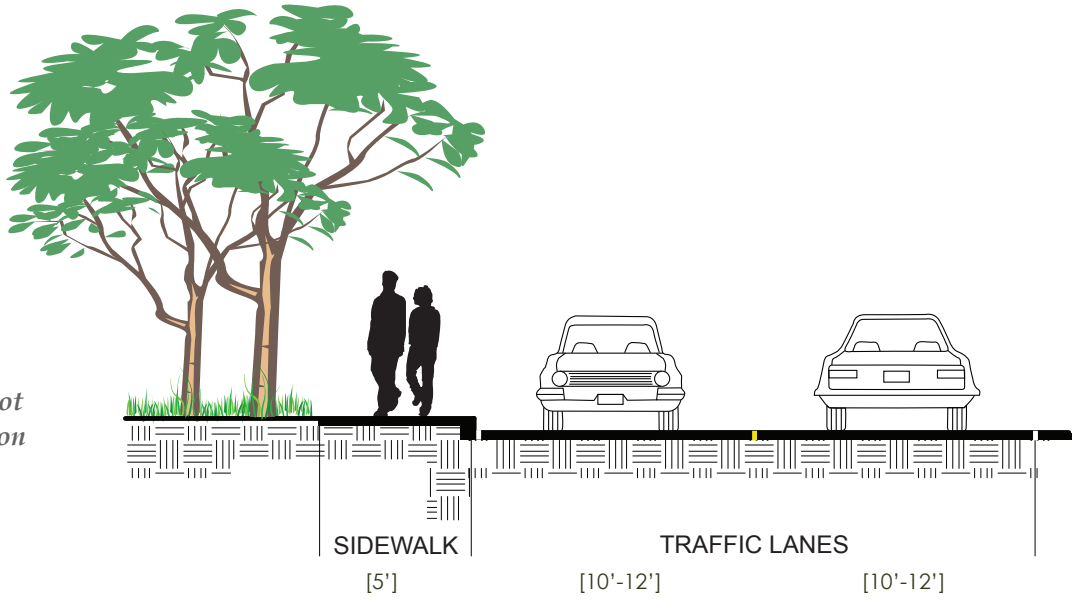
Sidewalk Guideline Sources:

American Association of State Highway and Transportation Officials. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. http://www.oregonmetro.gov

- Concrete is preferred surface, providing the longest service life and requiring the least maintenance. Permeable pavement such as porous concrete may be considered to improve water quality.
- Sidewalks should be built as flat as possible to accommodate all pedestrians; they should have a running grade of five percent or less; with a two percent maximum cross-slope.
- Concrete sidewalks should be built to minimum depth of four inches; six inches at driveways.
- Sidewalks should be a minimum of five feet wide; sidewalks serving mixed use and commercial areas shall be a minimum of 8 ft in width (12–15 feet is required in front of retail storefronts). The maximum cross-slope should be no more than 2 percent (1:50)*.
- Buffer zone of two to four feet in local or collector streets; five to six feet in arterial or major streets and up to eight feet in busy streets and downtown to provide space for light poles and other street furniture. See the Landscaping section later in this chapter for shade and buffer opportunities of trees and shrubs.
- Motor vehicle access points should be kept to minimum.
- If a sidewalk with buffer on both sides is not feasible due to topography and right-of-way constraints, then a sidewalk on one side is better than no facility. Each site should be examined in detail to determine placement options.

** If a greater slope is anticipated because of unusual topographic or existing conditions, the designer should maintain the preferred slope of 1:50 within the sidewalk area, if possible. This can be accomplished either by raising the curb so that the cross-slope of the entire sidewalk can be 1:50, or by placing the more steeply angled slope within the area between the sidewalk and the road.*



Right: Where space and topography are limiting and a planted buffer is not possible, this cross section may be applied.

GREENWAY TRAIL

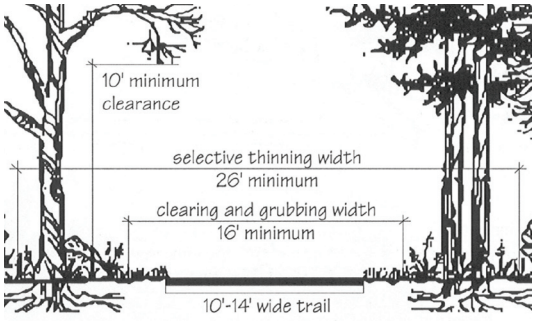
A greenway is defined as a linear corridor of land that can be either natural, such as rivers and streams, or manmade, such as abandoned railroad beds and utility corridors. Many greenways contain trails. Greenway trails can be paved or unpaved, and can be designed to accommodate a variety of trail users, including bicyclists, walkers, hikers, joggers, skaters, horseback riders, and those confined to wheelchairs. Single-tread, multi-use trails are the most common trail type in the nation. These trails vary in width and can accommodate a wide variety of users.

Note: A greenway trail located along a roadway corridor is sometimes referred to as a 'sidepath'.

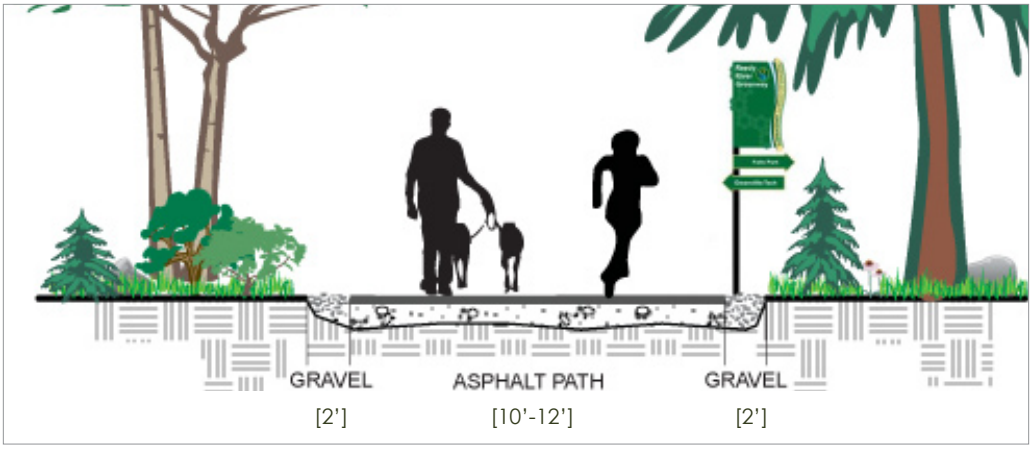
TRAIL GUIDELINES:

- The minimum width for two-directional trails is 10', however 12'-14' widths are preferred where heavy traffic is expected. Vertical clearance under bridges and other structures should be 8' to 10'.
- Centerline stripes should be considered for paths that generate substantial amounts of pedestrian traffic, or along curved portions of the trail, where sight-lines are limited. Radii minimums should also be considered depending on the different user groups.
- While the vegetative clearing needed for these trails varies with the width of the trail, the minimum width for clearing and grubbing a 10' wide trail is 16'. Selective thinning increases sight lines and distances and enhances the safety of the trail user. This practice includes removal of underbrush and limbs to create open pockets within a forest canopy, but does not include the removal of the forest canopy itself.
- Crossings should be a safe enough distance from neighboring intersections to not interfere (or be interfered) with traffic flow.
- A roadway with flat topography is desirable to increase motorist visibility of the path crossing.
- Motorists and trail users should be warned, such as with signage (including trail stop signs), changes in pavement texture, flashing beacons, raised crossings, striping, etc.
- A refuge is needed where crossing distance is excessive and in conditions exhibiting high volumes/speeds and where the primary user group crossing the roadway requires additional time, such as school children and the elderly.
- The crossing should occur as close to perpendicular (90 degrees) to the roadway as possible.
- If possible, it may be desirable to bring the path crossing up to a nearby signalized crossing in situations with high speeds/ADT and design and/or physical constraints.
- Signalized crossings may be necessary on trails with significant usage when intersecting with demanding roadways, but MUTCD warrants must be met for the installation of a signalized crossing.
- Sidepaths should be constructed along corridors with relatively few intersections and driveways, reducing conflict points.
- Typical pavement design for a paved, off-road, multi-use trail should be based upon the specific loading and soil conditions for each project. Asphalt or concrete trails should be designed to withstand the loading requirements of occasional maintenance and emergency vehicles.

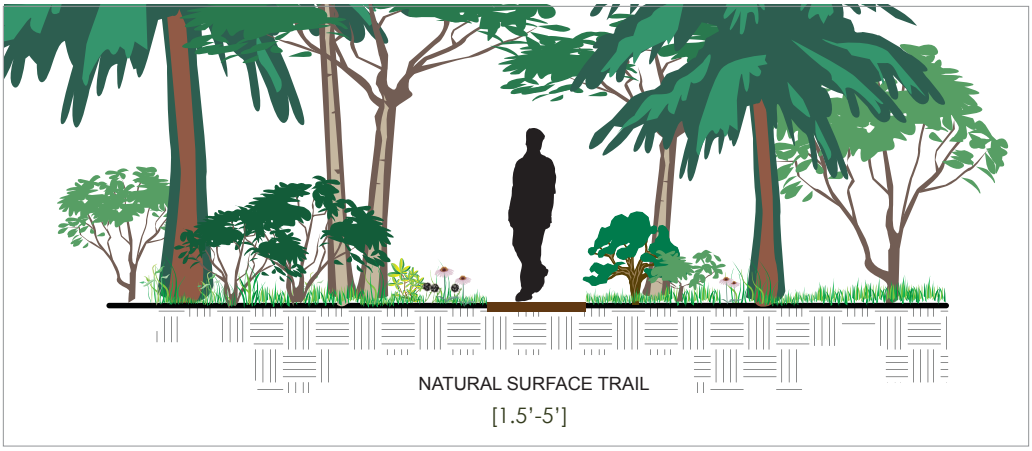
Below: Vegetation clearing guidelines



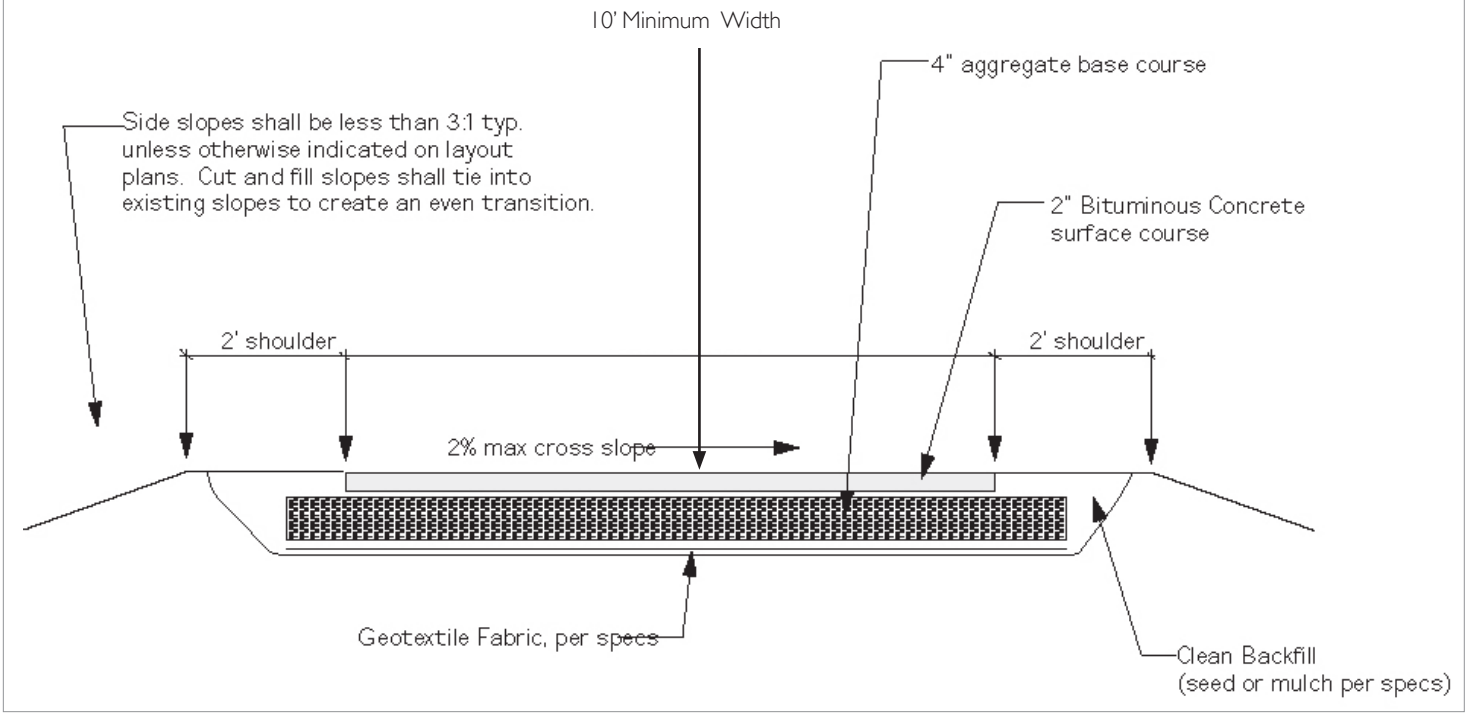
Right: Typical asphalt path section



Right: Typical natural surface trail section



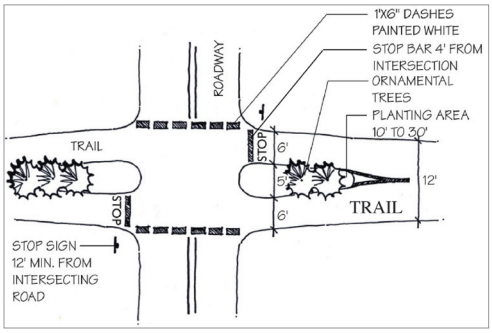
Below: Asphalt pavement construction detail



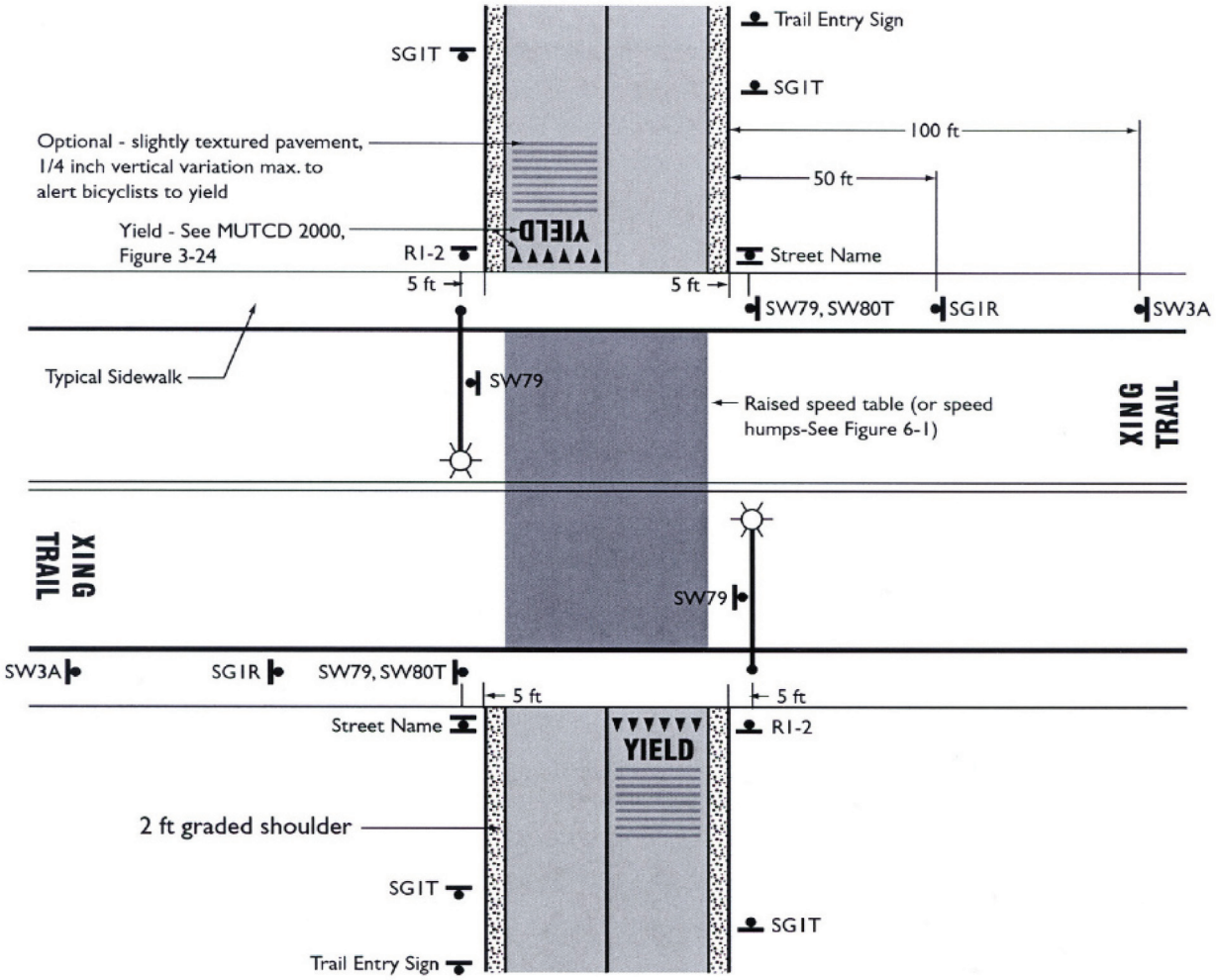
- *Concrete Trail:* In areas prone to frequent flooding, it is recommended that concrete be used because of its excellent durability. Concrete surfaces are capable of withstanding the most powerful environmental forces. They hold up well against the erosive action of water, root intrusion and subgrade deficiencies such as soft soils. Most often, concrete is used for intensive urban applications. Of all surface types, it is the strongest and has the lowest maintenance requirement, if it is properly installed.

- *Asphalt Trail:* Asphalt is a flexible pavement and can be installed on virtually any slope. One important concern for asphalt trails is the deterioration of trail edges. Installation of a geotextile fabric beneath a layer of aggregate base course (ABC) can help to maintain the edge of a trail. It is important to provide a 2' wide graded shoulder to prevent trail edges from crumbling.

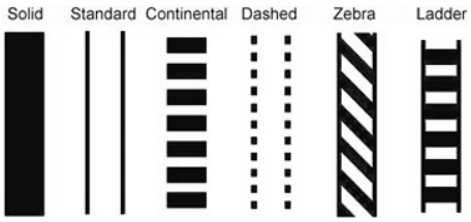
- *Trail and Roadway Intersections:* The images below and at right present detailed specifications for the layout of intersections between trail corridors and roadways. Signage rules for such intersections are available in the Manual for Urban Traffic Control Devices (MUTCD).



Above and below: Typical greenway trail approachs to a roadway



MARKED CROSSWALKS



A variety of patterns are possible in designating a crosswalk; an example of a 'continental' design is shown above.

A marked crosswalk designates a pedestrian right-of-way across a street. It is often installed at controlled intersections or at key locations along the street (a.k.a. mid-block crossings). Every attempt should be made to install crossings at the specific point at which pedestrians are most likely to cross: a well-designed traffic calming location is not effective if pedestrians are instead using more seemingly convenient and potentially dangerous location to cross the street. Marked pedestrian crosswalks may be used under the following conditions: 1) At locations with stop signs or traffic signals, 2) At non-signalized street crossing locations in designated school zones, and 3) At non-signalized locations where engineering judgment dictates that the use of specifically designated crosswalks are desirable.

There is a variety of form, pattern, and materials to choose from when creating a marked crosswalk. It is important however to provide crosswalks that are not slippery, are free of tripping hazards, or are otherwise difficult to maneuver by any person including those with physical mobility or vision impairments. Although attractive materials such as inlaid stone or certain types of brick may provide character and aesthetic value, the crosswalk can become slippery. Potential materials can be vetted by requesting case studies from suppliers regarding where the materials have been successfully applied. Also, as some materials degrade from use or if they are improperly installed, they may become a hazard for the mobility or vision impaired.

CROSSWALK GUIDELINES:

Crosswalk Guideline Sources:

American Association of State Highway and Transportation Officials. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. www.oregonmetro.gov

- Should not be installed in an uncontrolled environment [at intersections without traffic signals] where speeds exceed 40 mph. (AASHTO, 2004)
- Crosswalks alone may not be enough and should be used in conjunction with other measures to improve pedestrian crossing safety, particularly on roads with average daily traffic (ADT) above 10,000
- Width of marked crosswalk should be at least six feet; ideally ten feet or wider in downtown areas.
- Curb ramps and other sloped areas should be fully contained within the markings.
- Crosswalk markings should extend the full length of the crossings.
- Crosswalk markings should be white per MUTCD.
- Either the 'continental' or 'ladder' patterns are recommended for intersection improvements for aesthetic and visibility purposes. Lines should be one to two feet wide and spaced one to five feet apart.
- NCDOT typically requires pedestrian facilities (sidewalks) on both sides of a roadway when placing crosswalks.

CURB RAMPS

Curb ramps are critical features that provide access between the sidewalk and roadway for wheelchair users, people using walkers, crutches, or handcarts, people pushing bicycles or strollers, and pedestrians with mobility or other physical impairments. In accordance with the 1973 Federal Rehabilitation Act and to comply with the 1990 Federal ADA requirements, curb ramps must be installed at all intersections and mid-block locations where pedestrian crossings exist (Pedestrian and Bicycle Information Center: http://www.walkinginfo.org/engineering/roadway-ramps.cfm). In addition, these federal regulations require that all new constructed or altered roadways include curb ramps.

Two separate curb ramps should be provided at each intersection (see image below). With only one large curb ramp serving the entire corner, there is not safe connectivity for the pedestrian. Dangerous conditions exist when the single, large curb ramp inadvertently directs a pedestrian into the center of the intersection, or in front of an unsuspecting, turning vehicle.

CURB RAMP GUIDELINES:

- Two separate curb ramps, one for each crosswalk, should be provided at corner of an intersection.
- Curb ramp should have a slope no greater than 1:12 (8.33%). Side flares should not exceed 1:10 (10%); it is recommended that much less steep slopes be used whenever possible.

Curb Ramp Guideline Sources:

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. http://www.oregonmetro.gov

Left: The curb ramps shown have two separate ramps at the intersection (visable across the street) (Image from http://www.walkinginfo.org).

For additional information on curb ramps see Accessible Rights-of-Way: A Design Guide, by the U.S. Access Board and the Federal Highway Administration, and Designing Sidewalks and Trails for Access, Parts I and II, by the Federal Highway Administration. Visit: www.access-board.gov for the Access board's right-of-way report.

RAISED OR LOWERED MEDIANS

Medians are barriers in the center portion of a street or roadway. When used in conjunction with mid-block or intersection crossings, they can be used as a crossing island to provide a place of refuge for pedestrians. They also provide opportunities for landscaping that in turn can help to slow traffic. A center turn lane can be converted into a raised or lowered median thus increasing motorist safety.

A continuous median can present several problems when used inappropriately. If all left-turn opportunities are removed, there runs a possibility for increased traffic speeds and unsafe U-turns at intersections. Additionally, the space occupied may be taking up room that could be used for bike lanes or other treatments. An alternative to the continuous median is to create a segmented median with left turn opportunities.

Raised or lowered medians are best suited for high-volume, high-speed roads, and they should provide ample cues for people with visual impairments to identify the boundary between the crossing island and the roadway.

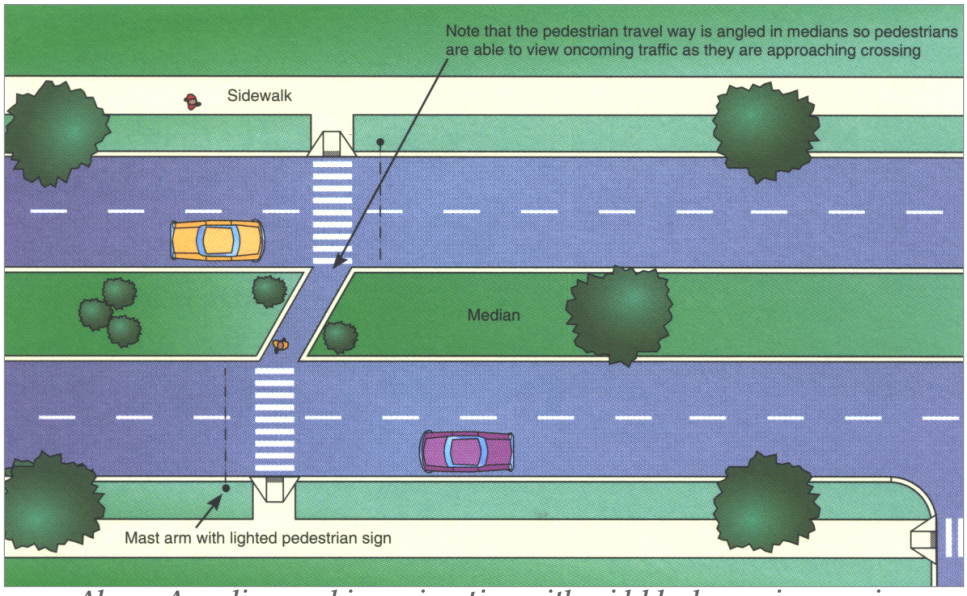
MEDIAN GUIDELINES:

- Median pedestrian refuge islands should be provided as a place of refuge for pedestrians crossing busy or wide roadways at either mid-block locations or intersections. They should be utilized on high speed and high volume roadways.
- Medians should incorporate trees and plantings to change the character of the street and reduce motor vehicle speed.
- Landscaping should not obstruct the visibility between motorists and pedestrians.
- Median crossings should provide ramps or cut-throughs for ease of accessibility for all pedestrians.
- Median crossings should be at least 6 feet wide in order to accommodate more than one pedestrian, while a width of 10 feet (where feasible) should be provided for bicycles, wheelchairs, and groups of pedestrians.
- Median crossings should possess a minimum of a 4 foot square level landing to provide a rest point for wheelchair users.
- Pedestrian push-buttons should be located in the median of all signalized mid-block crossings, where the roadway width is in excess of 60 feet.

Median Guideline Sources:

American Association of State Highway and Transportation Officials. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. http://www.oregonmetro.gov



Above: A median used in conjunction with mid-block crossing, serving as a refuge for pedestrians. (Image from AASHTO).

MID-BLOCK CROSSINGS

A Mid-Block Crosswalk is any crosswalk that is not located within an intersection. Midblock crossings are often installed in areas with heavy pedestrian traffic to provide more frequent crossing opportunities. They may also be added near major pedestrian destinations, such as schools or busy commercial areas, where people might otherwise cross at unmarked locations.

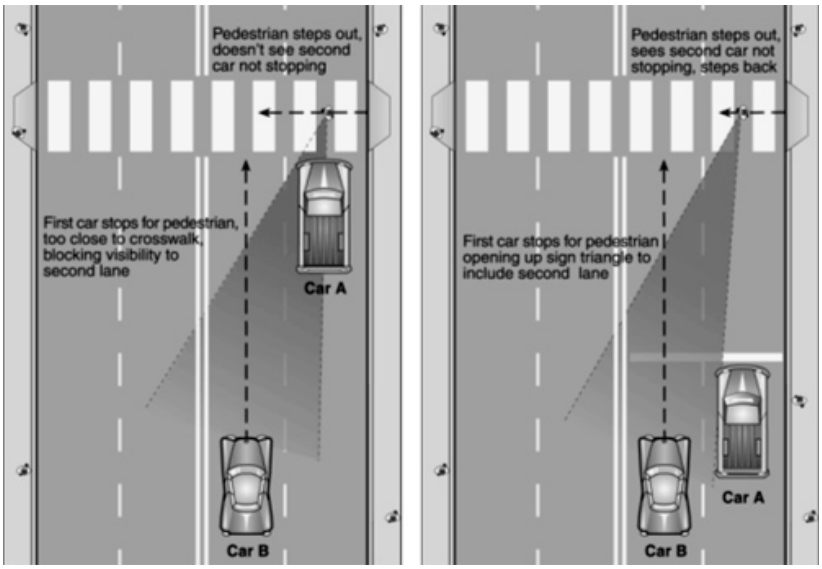
MID-BLOCK CROSSING GUIDELINES:

- Crosswalks at mid-block should not be installed within 300 ft. of another signalized crossing point.
- Utilize advance warning signs when mid-block crossings are present.
- Raised crosswalks are typically used on two-lane streets with less than 35 MPH speed limit.
- It will be the standard practice of NCDOT to install Mid-Block Crosswalks based on an engineering study. All Mid-Block Crosswalks shall be signed and marked in compliance with the Manual on Uniform Traffic Control Devices (MUTCD), the North Carolina Supplement to the MUTCD, the current NCDOT Roadway Standard Drawings, and the standards the NCDOT Policy on Mid-Block Crossings.
- The NCDOT Policy on Mid-Block Crossings can be found at www.ncdot.gov/doh/preconstruct/traffic/teppl/topics/C-36/C-36_pr.pdf

ADVANCE STOP BARS

Moving the vehicle stop bar 15–30 feet back from the pedestrian crosswalk at signalized crossings and mid-block crossings increases vehicle and pedestrian visibility. Advance stop bars are 1–2 feet wide and they extend across all approach lanes at intersections. The time and distance created allows a buffer in which the pedestrian and motorist can interpret each other's intentions. Studies have shown that this distance translates directly into increased safety for both motorist and pedestrian. One study in particular claims that by simply adding a "Stop Here for Pedestrians" sign reduced pedestrian motorist conflict by 67%. When this was used in conjunction with advance stop lines, it increased to 90% (Pedestrian and Bicycle Information Center:http://www.walkinginfo.org/engineering/crossings-enhancements.cfm).

Below: Advance stop bars enhance visibility for pedestrians (Image from www.walkinginfo.org).



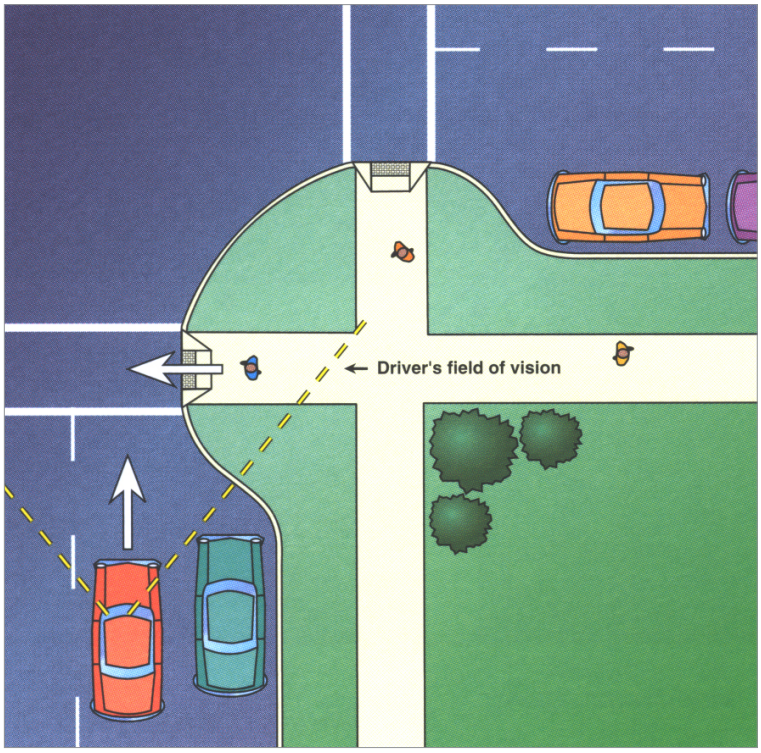
BULB-OUTS

A bulb-out, or curb extension, is a place where the sidewalk extends into the parking lane of a street. Because these curb extensions physically narrow the roadway, a pedestrian's crossing distance—and consequently the time spent in the street—is reduced. They can be placed either at mid-block crossings or at intersections.

**The curb radius of a street corner affects traffic speed and crosswalk length. In general, a smaller (narrow) curb radius is better for pedestrians. A larger (wide) curb radius creates a greater crosswalk length and allows vehicles to move faster around the turn. Reducing the curb radius, especially across busy multi-lane arterials, can increase pedestrian safety by slowing vehicles and minimizing pedestrian crossing distances.*

Sightlines and pedestrian visibility are reduced when motor vehicle parking encroaches too close to corners creating a dangerous situation for pedestrians. When placed at an intersection, bulb-outs preclude vehicle parking too close to a crosswalk. Also, bulb-outs at intersections can greatly reduce turning speed, especially if curb radii are set as tight as possible* (Pedestrian and Bicycle Information Center: www.walkinginfo.org/engineering/crossings-curb.cfm). Finally, bulb-outs also reduce travel speeds when used in mid-block crossings because of the reduced street width.

Bulb-outs should only be used where there is an existing on-street parking lane and should never encroach into travel lanes, bike lanes, or shoulders (Pedestrian and Bicycle Information Center.



Above: By reducing a pedestrian's crossing distance, less time is spent in the roadway, and pedestrian vehicle conflicts are reduced (Image from AASHTO).

BULB-OUT GUIDELINES:

- Bulb-outs should be used on crosswalks in heavy pedestrian areas where parking may limit the driver's view of the pedestrian.
- Where used, sidewalk bulb-outs should extend into the street for the width of a parking lane (a minimum five feet) in order to provide for a shorter crossing width, increased pedestrian visibility, more space for pedestrian queuing, and a place for sidewalk amenities and planting.
- Curb extensions should be used on mid-block crossing where feasible.
- Curb extensions may be inappropriate for use on corners where frequent right turns are made by trucks or buses.

PEDESTRIAN OVERPASS/UNDERPASS

Pedestrian overpasses and underpasses efficiently allow for pedestrian movement across busy thoroughfares. These types of facilities are problematic in many regards and should only be considered under suitable circumstances or where no other solution is possible. Perhaps the best argument for using them sparingly is that research proves pedestrians will avoid using such a facility if they perceive the ability to cross at grade as taking about the same amount of time (Pedestrian and Bicycle Information Center:http://www.walkinginfo.org/engineering/crossings-overpasses.cfm).

The other areas of contention arise with the high cost of construction. There are also ADA requirements for stairs, ramps, and elevators that in many cases once complied with result in an enormous structure that is visually disruptive and difficult to access.

Overpasses work best when existing topography allows for smooth transitions. Underpasses as well work best with favorable topography when they are open and accessible, and exhibit a sense of safety. Each should only be considered with rail lines, high volume traffic areas such as freeways, and other high volume arteries.

Example trail overpass (above) and underpass (below).

OVERPASS/UNDERPASS GUIDELINES:

- Over and underpasses should be considered only for crossing arterials with greater than 20,000 vehicle trips per day and speeds 35 - 40 mph and over.
- Minimum widths for over and underpasses should follow the guidelines for sidewalk width.
- Underpasses should have a daytime illuminance minimum of 10 fc achievable through artificial and/or natural light provided through an open gap to sky between the two sets of highway lanes, and a night time level of 4 foot-candle.
- Consider acoustics measures within underpasses to reduce noise impacts to pedestrians and bicyclists.

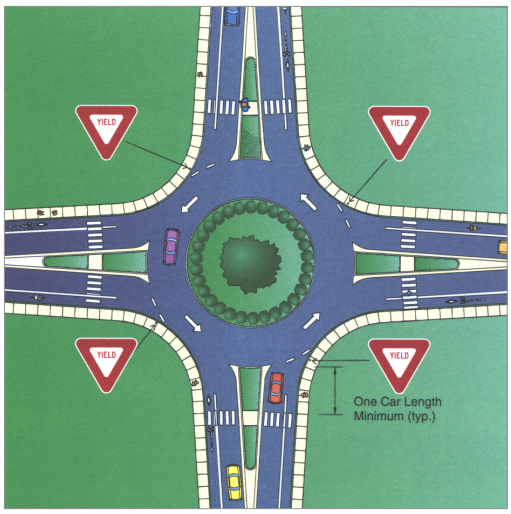
ROUNDABOUTS

A roundabout is a circular intersection that maneuvers traffic around in a counterclockwise direction so that cars make a right-hand turn onto a desired street. Vehicles from approaching streets are generally not required to stop although approaching vehicles are required to yield to motorists in the roundabout. It is believed that this system eliminates certain types of crashes at traditional intersections.

Every effort must be made to prompt motorists to yield to pedestrians crossing the roundabout. A low design speed is required to improve pedestrian safety. Splitter islands and single lane approaches both lend to pedestrian safety as well as other urban design elements discussed in this chapter.

Problems also arise with the vision-impaired because there are not proper audible cues associated with when to cross. Studies are underway to develop and test solutions. Auditory accessible pedestrian signals placed on sidewalks and splitter islands are one solution, but again there is no research to prove their efficacy.

Typical roundabout (Image from AASHTO)



Above: A pedestrian walks through a pedestrian refuge island, as part of a roundabout.

ROUNDABOUT GUIDELINES:

- The recommended maximum entry design speed for roundabouts ranges from 15 mph for 'mini-roundabouts' in neighborhood settings, to 20 mph for single-lane roundabouts in urban settings, to 25 mph for single-lane roundabouts in rural settings.

- Refer to roundabout diagram for typical crosswalk placement.

- Please refer to FHWA's report, Roundabouts, an Information Guide, available online through: www.fhrc.gov. The report provides information on general design principles, geometric elements, and provides detailed specifications for the various types of roundabouts.

TRAFFIC SIGNALS

Traffic signals assign the right of way to motorists and pedestrians and produce openings in traffic flow, allowing pedestrians time to cross the street. When used in conjunction with pedestrian friendly design, proper signalization should allow for an adequate amount of time for an individual to cross the street. The suggested amount of pedestrian travel speed recommended in the Manual on Uniform Traffic Control Devices (MUTCD) is 4ft/sec; however, this does not address the walking speed of the elderly or children. Therefore, it is suggested that a lower speed of 3.5ft/sec be used whenever there are adequate numbers of elderly and children using an area.

Engineering, as well as urban design judgment, must be used when determining the location of traffic signals and the accompanying timing intervals. Although warrants for pedestrian signal timing have been produced by the MUTCD, each site must be analyzed for factors including new facility and amenity construction (i.e. a popular new park or museum) to allow for potential future pedestrian traffic volume. In addition, creating better access to existing places may in fact generate a higher pedestrian volume.

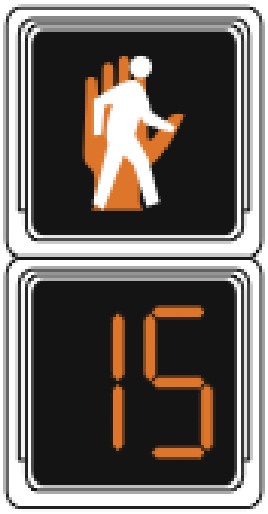
Fixed timed sequencing is often used in high traffic volume commercial or downtown areas to allow for a greater efficiency of traffic flow. In such instances, the pedestrian speed must be carefully checked to ensure safety.

RIGHT TURN ON RED RESTRICTIONS

Introduced in the 1970's as a fuel saving technique, the Right Turn on Red (RTOR) law is thought to have had a detrimental effect on pedestrians. The issue is not the law itself but rather the relaxed enforcement of certain caveats within the law such as coming to a complete stop and yielding to pedestrians. Often motorists will either nudge into a crosswalk to check for oncoming traffic without looking for pedestrians or slow, but not stop, for the red-light while making the turn.

A low cost sign that restricts right-hand turns at a red light (Image from http://www.walkinginfo.org).

There is legitimate concern that eliminating an RTOR will only increase the number of right-turn-on-green conflicts where all of the drivers who would normally have turned on red, now are anxious to turn on green. As discussed in the prior section, LPI or exclusive pedestrian intervals my help to alleviate this problem. Eliminating RTOR should be considered on a case-by-case basis and only where there are high pedestrian volumes. This can be done by simple sign postings as illustrated at right.



Typical Pedestrian Signal Indicators (with countdown display).

PEDESTRIAN SIGNALS

There are a host of traffic signal features and enhancements that can greatly improve the safety and flow of pedestrian traffic. Some include countdown signals, the size of traffic signals, positioning of traffic signals, audible cues, and timing intervals which are discussed below (Pedestrian and Bicycle Information Center: http://www.walkinginfo.org/engineering/crossings-signals.cfm).

As of 2008, new federal policy requires all new pedestrian signals to be of the countdown variety. In addition, all existing signals must be updated to countdown within 10 years (updated in MUTCD). Countdown signals have proven to be an effective measure of crash reduction (25% crash reduction in 2007 FHWA study).

Countdown signals are pedestrian signals that show how many seconds the pedestrian has remaining to cross the street. The countdown can begin at the beginning of the WALK phase, perhaps flashing white or yellow, or at the beginning of the clearance, or DON'T WALK phase, flashing yellow as it counts down. Audible cues can also be used to pulse along with a countdown signal.

Audible cues can also be used to pulse along with a countdown signal.

Signals should be of adequate size, clearly visible, and, in some circumstances, accompanied by an audible pulse or other messages to make crossing safe for all pedestrians. Consideration should be paid to the noise impact on the surrounding neighborhoods when deciding to use audible signals.

The timing of these or other pedestrian signals needs to be adapted to a given situation. In general, shorter cycle lengths and longer walk intervals provide better service to pedestrians and encourage better signal compliance. For optimal pedestrian service, fixed-time signal operation usually works best. Pedestrian pushbuttons may be installed at locations where pedestrians are expected intermittently. Quick response to the pushbutton or feedback to the pedestrian (e.g.- indicator light comes on) should be programmed into the system. When used, pushbuttons should be well-signed and within reach and operable from a flat surface for pedestrians in wheelchairs and with visual disabilities. They should be conveniently placed in the area where pedestrians wait to cross. Section 4E.09 within the MUTCD provides detailed guidance for the placement of pushbuttons to ensure accessibility (Pedestrian and Bicycle Information Center: http://www.walkinginfo.org/engineering/crossings-signals.cfm).

There are three types of signal timing generally used: concurrent, exclusive, and leading pedestrian interval (LPI). The strengths and weaknesses of each will be discussed with an emphasis on when they are best employed.

When high-volume turning situations conflict with pedestrian movements, the exclusive pedestrian interval is the preferred solution. The exclusive pedestrian intervals stop traffic in all directions. In order to keep traffic flowing regularly, there is often a greater pedestrian wait time associated with this system. Although it has been shown that pedestrian crashes have been reduced by 50% in some areas by using these intervals, the long wait times can encourage some to cross when there is a lull in traffic (Pedestrian and Bicycle Information Center: http://www.walkinginfo.org/engineering/crossings-signals.cfm).

An LPI gives pedestrians an advance walk signal before the motorists get a green light, giving the pedestrian several seconds to start in the crosswalk where there is a concurrent signal. This makes pedestrians more visible to motorists and motorists more likely to yield to them. This advance crossing phase approach has been used successfully in several places, such as New York City, for two decades and studies have demonstrated reduced conflicts for pedestrians. The advance pedestrian phase is particularly effective where there is a two-lane turning movement. There are some situations where an exclusive pedestrian phase may be preferable to an LPI, such as where there are high-volume turning movements that conflict with the pedestrians crossing.

The use of infrared or microwave pedestrian detectors has increased in many cities worldwide. Theses devices replace the traditional push-button system. They appear to be improving pedestrian signal compliance as well as reducing the number of pedestrian and vehicle conflicts. The best use of these devices is when they are employed to extend crossing time for slower moving pedestrians.

PEDESTRIAN SIGNAL GUIDELINES:

- Pedestrian signals should be placed in locations that are clearly visible to all pedestrians.
- Larger pedestrian signals should be utilized on wider roadways, to ensure readability.
- Pedestrian signal pushbuttons should be well-signed and visible.
- Pedestrian signal pushbuttons should clearly indicate which crossing direction they control.
- Pedestrian signal pushbuttons should be reachable from a flat surface, at a maximum height of 3.5 feet and be located on a level landing to ensure ease of operation by pedestrians in wheelchairs.
- Walk intervals should be provided during every cycle, especially in high pedestrian traffic areas.

Landscaping used on the Sea Street in Seattle, Washington shows how stormwater treatment can be tied to aesthetically pleasing plantings. (Image from Seattle, WA, Public Utilities: Seattle.gov)

Street trees buffer and soften often urban environments in a number of psychological, physical, and ecological ways; their shade is particularly helpful to pedestrians in North Carolina during summer months.

LANDSCAPING

The introduction of vegetation in an urban environment can provide a welcomed intervention of nature into a place that is otherwise hardened from buildings, concrete, and asphalt. It can be used to provide a separation buffer between pedestrians and motorists, reduce the width of a roadway, calm traffic by creating a visual narrowing of the roadway, enhance the street environment, and help to generate a desired aesthetic.

Street trees and other plantings provide comfort, a sense of place, and a more natural and inviting setting for pedestrians. Landscaping and the aforementioned street furniture make people feel welcome.

There are also some instances where islands of vegetation are created to collect and filter stormwater from nearby streets and buildings. These islands are referred to as constructed wetlands, rain gardens, and/or bioswales. When these devices are employed, the benefits listed above are coupled with economic and ecologic benefits of treating stormwater at its source. There are many examples of this in Oregon and Washington, particularly Seattle's Green Streets Program. Using thoughtful design to treat stormwater as an amenity rather than waste to be disposed of in an environmentally harmful manner is gaining popularity nationwide.

An issue with this or any landscaping treatment is that of ongoing maintenance. The responsibility often falls on local municipalities although there are instances where local community groups have provided funding and volunteers for maintenance. The best way to address the maintenance issue is to design using native plant material that is already adapted to the local soil and climate. Growth pattern and space for maturation, particularly with larger tree plantings, are important to avoid cracking sidewalks and other pedestrian obstructions.

ROADWAY LIGHTING IMPROVEMENTS

Proper lighting in terms of quality, placement, and sufficiency can greatly enhance a nighttime urban experience as well as create a safe environment for motorists and pedestrians. Two-thirds of all pedestrian fatalities occur during low-light conditions (AASHTO, 2004: Guide for the Planning, Design, and Operation of Pedestrian Facilities). Attention should be paid to crossings so that there is sufficient ambience for motorists to see pedestrians. To be most effective, lighting should be consistent, adequately spaced, and distinguished, providing adequate light.

In most cases, roadway street lighting can be designed to illuminate the sidewalk area as well. The visibility needs of both pedestrian and motorist should be considered. In commercial or downtown areas and other areas of high pedestrian volumes, the addition of lower level, pedestrian-scale lighting to streetlights with emphasis on crossings and intersections may be employed to generate a desired ambiance. A variety of lighting choices include mercury vapor, incandescent, or less expensive high-pressure sodium lighting for pedestrian level lighting. Roadway streetlights can range from 20-40 feet in height while pedestrian-scale lighting is typically 10-15 feet.

It is important to note that every effort should be made to address and prevent light pollution. Also known as photo pollution, light pollution is 'excess or obtrusive light created by humans'.

Above: An example of pedestrian-scale lighting.

GUIDELINES:

- Ensure pedestrian walkways and crossways are sufficiently lit.
- Consider adding pedestrian-level lighting in areas of higher pedestrian volumes, downtown, and at key intersections.
- Install lighting on both sides of streets in commercial districts.
- Use uniform lighting levels
- Use full cut-off light fixtures to avoid excess light pollution

STREET FURNITURE AND WALKING ENVIRONMENT

As part of a comprehensive sidewalk and walkway design, all street furniture should be placed in a manner that allows for a safe, pleasurable, and accessible walking environment. Good-quality street furniture will show that the community values its public spaces and is more cost-effective in the long run. Street furniture includes benches, trash bins, signposts, newspaper racks, water fountains, bike racks, restaurant seating, light posts, and other ornaments that are found within an urban street environment. Street furniture should mostly be considered in the downtown area and other important pedestrian-active areas.

In addition to keeping areas free of obstruction from furniture, a walking environment should be clean and well maintained. Attention to removing debris, trimming vegetation, allowing for proper stormwater drainage, providing proper lighting and sight angles, and repairing or replacing broken or damaged paving material can make an enormous difference in pedestrian perception of safety and aesthetics. Special attention should be paid to the needs of the visually impaired so that tripping hazards and low hanging obstructions are removed.

GUIDELINES:

- Ensure proper placement of furniture; do not block pedestrian walkway or curb ramps or create sightline problems.
- Wall mounted Objects = not to protrude more than 4" from a wall between 27" and 7' from the ground
- Single post mounted Objects = not to protrude more than 4" from each side of the post between 27" and 7' from the ground
- Multiple Post Mounted Objects = lowest edge should be no higher than 27" and no lower than 7'
- Place street furniture at the end of on-street parking spaces rather than in middle to avoid vehicle-exiting conflict.

The street furniture shown here is placed in such a manner so as to create a safe, pleasurable, and accessible walking environment

TRANSIT STOP TREATMENTS

Where transit opportunities are available, it is appropriate to consider some of the basic elements of a well designed, accessible, and functional transit stop.

Bus or other transit stops should be located in places that are most suitable for the passengers. For example, stops should be provided near higher density residential areas, commercial or business areas, and schools, and connected to these areas by sidewalk. Some of the most important elements to consider are the most basic: sidewalk connectivity to the stops, proper lighting, legible and adequate transit stop signage, shelter, seating, trash bins, bicycle and even car parking. Transit stops create an area of activity and may generate additional business and pedestrian traffic. Therefore, an opportunity is created to provide adequate sidewalks and other pedestrian oriented design elements. At a minimum, marked crosswalks (especially at mid-block stops), curb ramps, and proper sidewalk widths should be considered.

As with any human scale design element discussed, safety is an important factor to consider when locating bus stops. In the case of a bus stop, special attention should be paid to the number of lanes and direction of traffic when deciding to locate a stop on the near or far side of an intersection. Also special consideration must be paid to the wheelchair lifts in terms of how and where the mobility impaired will exit and enter the bus.

Local walking and biking maps should also be provided at bus stops, so that people are aware of the nearby destinations and how best to get there without an automobile.

This typical transit stop has all of the key features of shelter, ample seating, bicycle parking, landscaping, and trash bins (Image from http://www.walkinginfo.org).

PEDESTRIAN SIGNS AND WAYFINDING

For a step-by-step guide to help non-professionals participate in the process of developing and designing a signage system, as well as information on the range of signage types, visit the Project for Public Places website: http://www.pps.org/info/amenities_bb/signage_guide

Signage provides important safety and wayfinding information to motorist and pedestrian residents and tourists. From a safety standpoint, motorists should be given advance warning of upcoming pedestrian crossings or of traffic calming areas. Signage of any type should be used and regulated judiciously. An inordinate amount of signs creates visual clutter. Under such a condition, important safety or wayfinding information may be ignored resulting in confusion and possible pedestrian vehicle conflict. Regulations should also address the orientation, height, size, and sometimes even style of signage to comply with a desired local aesthetic.

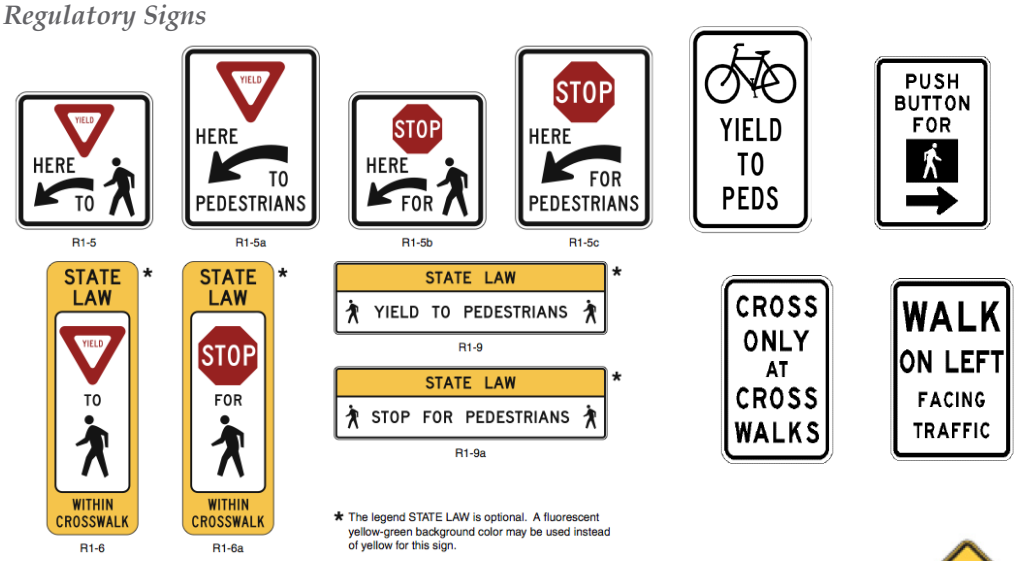
Regulatory signage is used to inform motorists or pedestrians of a legal requirement and should only be used when a legal requirement is not otherwise apparent (AASHTO, 2004: Guide for the Planning, Design, and Operation of Pedestrian Facilities).

Below: Typical traffic signs found around pedestrian friendly places.

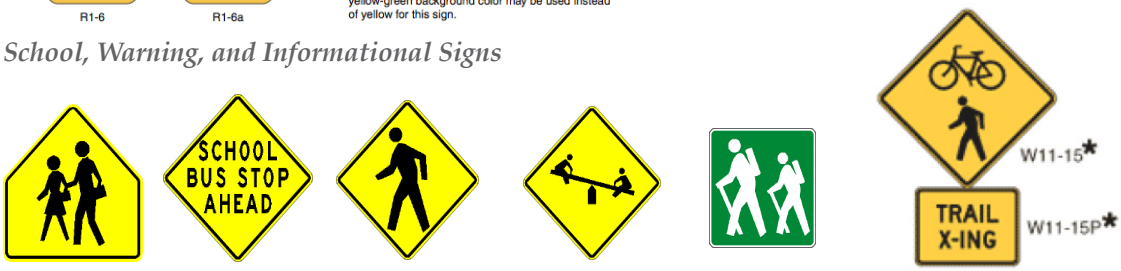
Sign	MUTCD Code	MUTCD Section	Conventional Road	
Yield here to Peds	R1-5	2B.11	450x450 (18x18)	Regulatory
Yield here to Peds	R1-5a	2B.11	450x600 (18x24)	
In-Street Ped Crossing	R1-6, R1-6a	2B.12	300x900 (12x36)	
Peds and Bikes Prohibited	R5-10b	2B.36	750x450 (30x18)	
Peds Prohibited	R5-10c	2B.36	600x300 (24x12)	
Walk on Left Facing Traffic	R9-1	2B.43	450x600 (18x24)	
Cross only at Crosswalks	R9-2	2B.44	300x450 (12x18)	
No Ped Crossing	R9-3a	2B.44	450x450 (18x18)	
No Hitch Hiking	R9-4	2B.43	450x600 (18x24)	
No Hitch Hiking (symbol)	R9-4a	2B.43	450x450 (18x18)	
Bikes Yield to Peds	R9-6	9B.10	300x450 (12x18)	
Ped Traffic Symbol	R10-4b	2B.45	225x300 (9x12)	
School Advance Warning	S1-1	7B.08	900x900 (36x36)	School, Warning, informational
School Bus Stop Ahead	S3-1	7B.10	750x750 (30x30)	
Pedestrian Traffic	W11-2	2C.41	750x750 (30x30)	
Playground	W15-1	2C.42	750x750 (30x30)	
Hiking Trail	I-4	--	600x600 (24x24)	

1. Larger signs may be used when appropriate.
2. Dimensions are shown in millimeters followed by inches in parentheses and are shown as width x height.
3. First dimension in millimeters; dimensions in parentheses are in inches.
4. All information in table taken directly from MUTCD.

Regulatory Signs



School, Warning, and Informational Signs

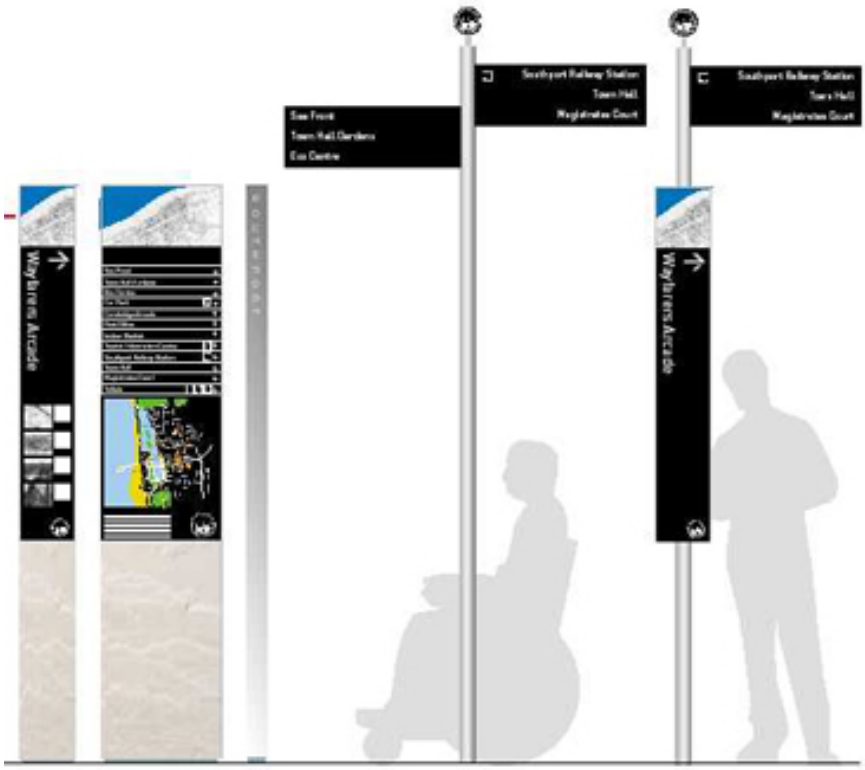


Warning signage is used to inform motorists and pedestrians of unexpected or unusual conditions. When used, they should be placed to provide adequate response times. These include school warning signs and pedestrian crossing signs3.

Informational and wayfinding signage can provide information providing guidance to a location along a trail or other pedestrian facility. Wayfinding signage should orient and communicate in a clear, concise and functional manner. It should enhance pedestrian circulation and direct visitors and residents to important destinations. In doing so, the goal is to increase the comfort of visitors and residents while helping to convey a local identity.

Maintenance of signage is as important as walkway maintenance. Clean, graffiti free, and relevant signage enhances guidance, recognition, and safety for pedestrians.

Below: Wayfinding signs promote aesthetics as well as provide important information (image from Stefton, UK: http://www.sefton.gov.uk



BRIDGES

Provisions should always be made to include a walking facility as a part of vehicular bridges, underpasses, or tunnels, especially if the facility is part of the Pedestrian Network. All new or replacement bridges, other than those for controlled access roadways, should accommodate pedestrians with wide sidewalks on both sides of the bridge. Even though bridge replacements do not occur regularly, it is important to consider these in longer-term pedestrian planning.

It is DOT bridge policy that within Urban Area boundaries (which are ambiguously defined as the "outer limits of potential urban growth"), sidewalks shall be included on new bridges with curb and gutter approach roadways with no controlled access. Sidewalks should not be included on controlled access facilities. A determination on whether to provide sidewalks on one or both sides of new bridges will be made during the planning process according to the DOT Pedestrian Policy Guidelines. When a sidewalk is justified, it should be a minimum of five to six feet wide with a minimum handrail height of 42".

It is also DOT bridge policy that bridges within the Federal-aid urban boundaries with rural-type roadway sections (shoulder approaches) may warrant special consideration. To allow for future placement of ADA acceptable sidewalks, sufficient bridge deck width (typically 7.5' for one side) should be considered on new bridges in order to accommodate the placement of sidewalks. The full Bridge Policy for DOT can be download as a Microsoft Word document at this address:

www.ncdot.org/doh/preconstruct/altern/value/manuals/bpe2000.doc

BRIDGE GUIDELINES:

- Sidewalks should be included on roadway bridges with no controlled access with curb and gutter approach in Urban Areas.

- Sufficient bridge deck width should be considered on new bridges with rural-type shoulder approaches for future placement of sidewalks.

- Sidewalk should be 5' to 6' wide.

- Minimum handrail height should be 42"

RECTANGULAR RAPID FLASH BEACON (RRFB)

Also known as "Light Emitting Diode (LED) Rapid-Flash System", "Stutter Flash" or "LED Beacons", RRFBs are user-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. They can be activated by pedestrians manually by a push button or passively by a pedestrian detection system. RRFBs use an irregular flash pattern that is similar to emergency flashers on police vehicles and may be installed on either two-lane or multi-lane roadways.

Activated, solar-powered, roadside RRRB at a mid-block crosswalk.

An official FHWA-sponsored experimental implementation and evaluation conducted in St. Petersburg, Florida found that RRFBs at pedestrian crosswalks are dramatically more effective at increasing driver yielding rates to pedestrians than traditional overhead beacons. The addition of RRFB may also increase the safety effectiveness of other treatments, such as the use of advance yield markings with YIELD (or STOP) HERE FOR PEDESTRIANS signs.

RRFB GUIDELINES:

- Currently, state and federal approval is required for use.
- Flashers should only flash during the times when crossings occur (e.g., such as during White Lake's peak tourist periods). This can be done with a time clock, pedestrian push button to activate the flasher, or through automatic pedestrian detection devices.
- RRFBs can also use use automated passive (e.g., video or infrared) pedestrian detection, and should be unlit when not activated.
- RRFBs typically receive power by standalone solar panel units, but may also be wired to a traditional power source.
- Warning flashers can be mounted over the road or along the side of the road, and when used should be used in conjunction with advance warning signs.

The MUTCD gave interim approval to RRFBs for optional use in limited circumstances in July 2008. The interim approval allows for usage as a warning beacon to supplement standard pedestrian crossing warning signs and markings at either a pedestrian or school crossing; where the crosswalk approach is not controlled by a yield sign, stop sign, or traffic-control signal; or at a crosswalk at a roundabout.

The MUTCD interim approval memo also contains other provisions for the implementation of the device and should be reviewed. For more details, see the see 2009 MUTCD, page 523, Section 4L.03

Public Involvement A

CHAPTER OUTLINE:

OVERVIEW

Public input was received and incorporated into the development of this Plan. Input came through two mechanisms: a citizen and staff-based Steering Committee, and a public workshop.

CITIZEN AND STAFF-BASED STEERING COMMITTEE

This committee, composed of citizens and Town staff, met twice during the planning process. The group established visions and goals for the Plan, identified areas of need in White Lake, and participated in fieldwork. Members of the Committee marked up maps and identified pedestrian problem areas and possible solutions. The goals are listed in Chapter 1 and input from the Committee is reflected throughout the recommendations of this planning document.

Steering committee members and NCDOT Division 6 staff also provided comment on the Draft Plan. These comments led to revisions made by the Consultant in the development of the Final Plan.

PUBLIC WORKSHOP

Approximately 35 White Lake citizens attended the public workshop held on February 4, 2010. The mayor, Town Board, town staff, and citizens were present to receive the Draft Plan recommendations and provide comment. Key items addressed by the group were:

- Gauging general public support for the plan with a show of hands from workshop attendees (nearly unanimous support was indicated).
- Refining cost estimates used in the draft to reflect local construction prices
- Discussing need for more right-of-way information along the route of the proposed trail, and the need for involvement from the local NCDOT office (which occurred in the weeks following the workshop with a NCDOT Division 6 review of the draft and staff feedback via e-mail).

SUPPORT IN ADVANCE OF THE PLANNING PROCESS

In the grant application stage of this planning process, the Town of White Lake obtained letters of support from many local and regional partners, including Camp Clearwater, Bladen County Hosipital, the Mid-Carolina Council of Governments Rural Transportation Planning Organization, the Fayetteville Area Metropolitan Planning organization Transportation Advisory Committee, and Bladen Health Watch.

White Lake Drive

FUNDING SOURCES B

CHAPTER OUTLINE:

OVERVIEW

When considering possible funding sources for the Town of White Lake's pedestrian projects, it is important to consider that it is highly unlikely that all construction activities will be accomplished from a single funding source since this project is expected to be in the millions of dollars. It will be necessary to consider several sources of funding, that when combined, would support full project construction. This paper outlines the most likely sources of funding for the projects at the federal, state, local government level and from the private sector.

STATE AND FEDERAL

Federal funding is typically directed through State agencies to local governments either in the form of grants or direct appropriations. These projects do not qualify for the recently passed federal stimulus funding (2009 American Recovery and Reinvestment Act) since they are not "shovel ready." Also, State budget shortfalls may make it extremely difficult to accurately forecast available funding for future project development. The following is a list of possible Federal and State funding sources that could be used to support construction of the many pedestrian projects. Federal funding requires a 20% local match, however the recent stimulus money does not require a match. Since these funding categories are difficult to forecast, it is recommended that the Town continue to work with the Mid-Carolina Council of Governments on getting pedestrian projects listed in the TIP (Transportation Improvement Program), as discussed below.

DEPARTMENT OF ENERGY (DOE)

The Department of Energy's Energy Efficiency and Conservation Block Grants (EECBG) grants may be used to reduce energy use and fossil fuel emissions and for improvements in energy efficiency. Section 7 of the funding announcement states that these grants provide opportunities for the development and implementation of transportation programs to conserve energy used in transportation including development of infrastructure

such as bike lanes and pathways and pedestrian walkways. Although, this grant period has passed, more opportunities may arise. More information can be found at http://www.eecbg.energy.gov/

NC DEPARTMENT OF TRANSPORTATION AND SAFETEA-LU

The most likely source of funding for the pedestrian projects would come from the North Carolina Department of Transportation and the federal funding program SAFETEA-LU. Some of the sub-programs within SAFETEA-LU and within NCDOT are listed below:

- State Transportation Improvement Program (STIP): The STIP contains funding for various transportation divisions of NCDOT including: highways, aviation, enhancements, public transportation, rail, bicycle and pedestrians, and the Governor's Highway Safety Program. STIP is the largest single source of funding within SAFETEA-LU and NCDOT.

- NCDOT Discretionary Funds: The Statewide Discretionary Fund consists of $10 million and is administered by the Secretary of the Department of Transportation. This fund can be used on any project at any location within the State. Primary, urban, secondary, industrial access, and spot safety projects are eligible for this funding. The Town would have to make a direct appeal to the Secretary of NCDOT to access these funds.

- NCDOT Contingency Fund: The Statewide Contingency Fund is a $10 million fund administered by the Secretary of Transportation. Again, the Town would have to appeal directly to the Secretary.

- NCDOT Enhancement Funding: Federal Transportation Enhancement funding is administered by NCDOT and serves to strengthen the cultural, aesthetic, and environmental aspects of the State's intermodal transportation system. Transportation Enhancement (TE) funding is awarded through NCDOT. The State typically will make a Call for Projects, and each project must benefit the traveling public and help communities increase transportation choices and access, enhance the built or natural environment and create a sense of place.

- NCDOT Bicycle and Pedestrian Project: Funds for bicycle and pedestrian projects come from several different sources. Allocation of funds depends on the type of project/program and other criteria. Projects can include independent and incidental projects.

NC DEPARTMENT OF ENVIRONMENT – RECREATIONAL TRAILS AND ADOPT-A-TRAIL GRANTS

The State Trails Program is a section of the N.C. Division of Parks and Recreation. The program originated in 1973 with the North Carolina Trails System Act and is dedicated to helping citizens, organizations and agencies plan, develop and manage all types of trails ranging from greenways and trails for hiking, biking and horseback riding to river trails and off-highway vehicle trails. The Recreation Trails Program awards grants up to $75,000 per project. The Adopt-A-Trail Program awards grants up to $5,000 per project.

POWELL BILL FUNDS

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by G.S. 136-41.1 through 136-41.4. Powell Bill funds shall be expended only for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways.

C*OMMUNITY DEVELOPMENT BLOCK GRANT FUNDS*

Community Development Block Grant (CDBG) funds are available to local municipal or county governments for projects that enhance the viability of communities by providing decent housing and suitable living environments and by expanding economic opportunities, principally for persons of low- and moderate-income. State CDBG funds are provided by the U.S. Department of Housing and Urban Development (HUD) to the state of North Carolina. Some urban counties and cities in North Carolina receive CDBG funding directly from HUD. Each year, CDBG provides funding to local governments for hundreds of critically-needed community improvement projects throughout the state. These community improvement projects are administered by the Division of Community Assistance and the Commerce Finance Center under eight grant categories. Two categories might be of support to the Town of White Lake Pedestrian Projects: infrastructure and community revitalization.

LAND AND WATER CONSERVATION TRUST FUND

The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the US Department of the Interior for outdoor recreation development and land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environment and Natural Resources.

N.C. PARKS AND RECREATION TRUST FUND (PARTF)

The Parks and Recreation Trust Fund (PARTF) provide dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the general public. Counties, incorporated municipalities and public authorities, as defined by G.S. 159-7, are eligible applicants.

A local government can request a maximum of $500,000 with each application. An applicant must match the grant dollar-for-dollar, 50% of the total cost of the project, and may contribute more than 50%. The appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match. http://www.ncparks.gov/About/grants/partf_main.php

LOCAL GOVERNMENT

Local funding sources that would support sidewalk and pedestrian project construction will most likely be limited but should be explored.

LOCAL AREA RURAL PLANNING ORGANIZATION

The Mid-Carolina Rural Planning Organization (RPO) manages the transportation planning process required by Federal law. The RPO plans for the area's surface transportation needs, including highways, transit, bicycle, and pedestrian facilities. There are two subcommittees of the RPO: the Technical Advisory Committee and the Technical Coordinating Committee. An important part of the transportation planning process is to identify transportation needs and to explore feasible alternatives to meet those needs. Plans and programs are often conducted in partnership with the NC Department of Transportation to identify needs and projects to enhance White Lake's transportation infrastructure.

It is suggested that the Town work closely with the RPO on getting these projects listed on the TIP since this may be the primary source of funding for the project. Typically, projects on this list require a 20% local match.

TOWN OF WHITE LAKE CAPITAL RESERVE FUNDS

The Town of White Lake may have funding available to support some elements of construction or repair. It will be important to meet with Town Council representatives and the Town Manager to judge the availability of this funding.

PRIVATE SECTOR

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are several examples of private funding opportunities available.

LAND FOR TOMORROW CAMPAIGN

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals and community groups committed to securing support from the

public and General Assembly for protecting land, water and historic places. The campaign is asking the North Carolina General Assembly to support issuance of a bond for $200 million a year for five years to preserve and protect its special land and water resources. Land for Tomorrow will enable North Carolina to reach a goal of ensuring that working farms and forests; sanctuaries for wildlife; land bordering streams, parks and greenways; land that helps strengthen communities and promotes job growth; historic downtowns and neighborhoods; and more, will be there to enhance the quality of life for generations to come. Website: http://www.landfortomorrow.org/

THE ROBERT WOOD JOHNSON FOUNDATION

The Robert Wood Johnson Foundation was established as a national philanthropy in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans. Grant making is concentrated in four areas:

- To assure that all Americans have access to basic health care at a reasonable cost
- To improve care and support for people with chronic health conditions
- To promote healthy communities and lifestyles
- To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs

For more specific information about what types of projects are funded and how to apply, visit http://www.rwjf.org/applications/.

NORTH CAROLINA COMMUNITY FOUNDATION

The North Carolina Community Foundation, established in 1988, is a statewide foundation seeking gifts from individuals, corporations, and other foundations to build endowments and ensure financial security for nonprofit organizations and institutions throughout the state. Based in Raleigh, North Carolina, the foundation also manages a number of community affiliates throughout North Carolina, that make grants in the areas of human services, education, health, arts, religion, civic affairs, and the conservation and preservation of historical, cultural, and environmental resources. The foundation also manages various scholarship programs statewide. Web site: http://nccommunityfoundation.org/

Z. SMITH REYNOLDS FOUNDATION

This Winston-Salem-based Foundation has been assisting the environmental projects of local governments and non-profits in North Carolina for many years. They have two grant cycles per year and generally do not fund land acquisition. However, they may be able to offer support in other areas of open space and greenways development. More information is available at www.zsr.org.

BANK OF AMERICA CHARITABLE FOUNDATION, INC.

The Bank of America Charitable Foundation is one of the largest in the nation. The primary grants program is called Neighborhood Excellence, which seeks to identify critical issues in local communities. Another program that applies to greenways is the Community Development Programs, and specifically the Program Related Investments. This program targets low and moderate income communities and serves to encourage entrepreneurial business development. Visit the web site for more information: www.bankofamerica.com/foundation.

DUKE ENERGY FOUNDATION

Funded by Duke Energy shareholders, this non-profit organization makes charitable grants to selected non-profits or governmental subdivisions. Each annual grant must have:

- An internal Duke Energy business "sponsor"
- A clear business reason for making the contribution

The grant program has three focus areas: Environment and Energy Efficiency, Economic Development, and Community Vitality. Related to this project, the Foundation would support programs that support conservation, training and research around environmental and energy efficiency initiatives. Web site: http://www.duke-energy.com/community/foundation.asp.

AMERICAN GREENWAYS EASTMAN KODAK AWARDS

The Conservation Fund's American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants ($250 to $2,000) to stimulate the planning, design and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, and building trails. Grants cannot be used for academic research, institutional support, lobbying or political activities. For more information visit The Conservation Fund's website at: www.conservationfund.org.

NATIONAL TRAILS FUND

American Hiking Society created the National Trails Fund in 1998, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. 73 million people enjoy foot trails annually, yet many of our favorite trails need major repairs due to a $200 million backlog of badly needed maintenance. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. To date, American Hiking has granted more than $240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from $500 to $10,000 per project.

Projects the American Hiking Society will consider include:

- Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.

- Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- Constituency building surrounding specific trail projects - including volunteer recruitment and support.

Web site: www.americanhiking.org/alliance/fund.html.

THE CONSERVATION ALLIANCE

The Conservation Alliance is a non-profit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. One hundred percent of its member companies' dues go directly to diverse, local community groups across the nation - groups like Southern Utah Wilderness Alliance, Alliance for the Wild Rockies, The Greater Yellowstone Coalition, the South Yuba River Citizens' League, RESTORE: The North Woods and the Sinkyone Wilderness Council (a Native American-owned/operated wilderness park). For these groups, who seek to protect the last great wild lands and waterways from resource extraction and commercial development, the Alliance's grants are substantial in size (about $35,000 each), and have often made the difference between success and defeat. Since its inception in 1989, The Conservation Alliance has contributed $4,775,059 to grassroots environmental groups across the nation, and its member companies are proud of the results: To date the groups funded have saved over 34 million acres of wild lands and 14 dams have been either prevented or removed-all through grassroots community efforts.

The Conservation Alliance is a unique funding source for grassroots environmental groups. It is the only environmental grant maker whose funds come from a potent yet largely untapped constituency for protection of ecosystems - the non-motorized outdoor recreation industry and its customers. This industry has great incentive to protect the places in which people use the clothing, hiking boots, tents and backpacks it sells. The industry is also uniquely positioned to educate outdoor enthusiasts about threats to wild places, and engage them to take action. Finally, when it comes to decision-makers - especially those in the Forest Service, National Park Service, and Bureau of Land Management, this industry has clout - an important tool that small advocacy groups can wield.

The Conservation Alliance Funding Criteria: The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation. We're not looking for mainstream education or scientific research projects, but rather for active campaigns. All projects should be quantifiable, with specific goals, objectives and action plans and should include a measure for evaluating success. The project should have a good chance for closure or significant measurable results over a fairly short term (one to two years). Funding emphasis may not be on general operating expenses or staff payroll.

Web site: www.conservationalliance.com/index.m.
E-mail: john@conservationalliance.com.

NATIONAL FISH AND WILDLIFE FOUNDATION (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, nonprofit, tax-exempt organization chartered by Congress in 1984. The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants and habitats. Through leadership conservation investments with public and private partners, the Foundation is dedicated to achieving maximum conservation impact by developing and applying best practices and innovative methods for measurable outcomes.

The Foundation awards matching grants under its Keystone Initiatives to achieve measurable outcomes in the conservation of fish, wildlife, plants and the habitats on which they depend. Awards are made on a competitive basis to eligible grant recipients, including federal, tribal, state, and local governments, educational institutions, and non-profit conservation organizations. Project proposals are received on a year-round, revolving basis with two decision cycles per year. Grants generally range from $50,000-$300,000 and typically require a minimum 2:1 non-federal match.

Funding priorities include bird, fish, marine/coastal, and wildlife and habitat conservation. Other projects that are considered include controlling invasive species, enhancing delivery of ecosystem services in agricultural systems, minimizing the impact on wildlife of emerging energy sources, and developing future conservation leaders and professionals. Website: http://www.nfwf.org/AM/Template.cfm?Section=Grants where additional grant programs are described.

THE TRUST FOR PUBLIC LAND

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the Trust for Public Land is the only national nonprofit working exclusively to protect land for human enjoyment and well being. TPL helps conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities. TPL's legal and real estate specialists work with landowners, government agencies, and community groups to:

- Create urban parks, gardens, greenways, and riverways
- Build livable communities by setting aside open space in the path of growth
- Conserve land for watershed protection, scenic beauty, and close-to home recreation safeguard the character of communities by preserving historic landmarks and landscapes.

The following are TPL's Conservation Services:

- Conservation Vision: TPL helps agencies and communities define conservation priorities, identify lands to be protected, and plan networks of conserved land that meet public need.
- Conservation Finance: TPL helps agencies and communities identify and raise funds for conservation from federal, state, local, and philanthropic sources.
- Conservation Transactions: TPL helps structure, negotiate, and complete land transactions that create parks, playgrounds, and protected natural areas.
- Research and Education: TPL acquires and shares knowledge of conservation issues and techniques to improve the practice of conservation and promote its public benefits.

WHITE LAKE, NORTH CAROLINA

Since 1972, TPL has worked with willing landowners, community groups, and national, state, and local agencies to complete more than 3,000 land conservation projects in 46 states, protecting more than 2 million acres. Since 1994, TPL has helped states and communities craft and pass over 330 ballot measures, generating almost $25 billion in new conservation-related funding. For more information, visit http://www.tpl.org/.

Potential trail ROW along US 701

ACQUISITION STRATEGIES C

CHAPTER OUTLINE:

OVERVIEW

There are many different ways to secure trail right-of-way for greenway systems. It will be necessary to work with some landowners to secure trail right-of-way when it does not exist. The following text provides a list of options that should be considered. Funding sources for acquiring right-of-way and trail development are described and provided in Appendix B.

The following sections detail a list of specific strategies including the formation of partnerships and a toolbox of acquisition options.

PARTNERSHIPS

The Town of White Lake should pursue partnerships with land trusts and land managers to make more effective use of their land acquisition funds and strategies. The following offers recommendations on how these partnerships could be strengthened

LAND TRUSTS

See the North Carolina Coastal Land Trust website for more info: www.coastallandtrust.org

Land trust organizations are valuable partners when it comes to acquiring land and rights-of-way for greenways. These groups can work directly with landowners and conduct their business in private so that sensitive land transactions are handled in an appropriate manner. Once the transaction has occurred, the land trust will usually convey the acquired land or easement to a public agency, such as a town or county for permanent stewardship and ownership.

PRIVATE LAND MANAGERS

Another possible partnership that could be strengthened would be with the utility companies that manage land throughout the region. Trails and greenways can be built on rights-of-ways that are either owned or leased by electric and natural gas companies. Electric utility companies have long recognized

the value of partnering with local communities, non-profit trail organizations, and private land owners to permit their rights-of-ways to be used for trail development. This has occurred all over the United States and throughout North Carolina.

The Town of White Lake should actively update and maintain relationships with private utility and land managers to ensure that community wide bicycle, pedestrian and greenway system can be accommodated within these rights-of-way. The respective municipalities will need to demonstrate to these companies that maintenance will be addressed, liability will be reduced and minimized and access to utility needs will be provided.

GREENWAY ACQUISITION TOOLS

The following menu of tools describe various methods of acquisition that can be used by landowners, land conservation organizations, the Town of White Lake, Bladen County, and other surrounding municipalities to acquire greenway lands.

GOVERNMENT REGULATION

Regulation is defined as the government's ability to control the use and development of land through legislative powers. Regulatory methods help shape the use of land without transferring or selling the land. The following types of development ordinances are regulatory tools that can meet the challenges of projected suburban growth and development as well as conserve and protect greenway resources.

GROWTH MANAGEMENT MEASURES (CONCURRENCY): Concurrency-based development approaches to growth management simply limit development to areas with adequate public infrastructure. This helps regulate urban sprawl, provides for quality of life in new development, and can help protect open space. In the famous case with the Town of Ramapo (1972), the Town initiated a zoning ordinance making the issue of a development permit contingent on the presence of public facilities such as utilities and parks. This was upheld in Court and initiated a wave of slow-growth management programs nationwide. This type of growth management can take the form of an adequate public facilities ordinance.

PERFORMANCE ZONING: Performance zoning is zoning based on standards that establish minimum requirements or maximum limits on the effects or characteristics of a use. This is often used for the mixing of different uses to minimize incompatibility and improve the quality of development. For example, how a

commercial use is designed and functions determines whether it could be allowed next to a residential area or connected to a greenway.

INCENTIVE ZONING (DEDICATION/DENSITY TRANSFERS): Also known as incentive zoning, this mechanism allows greenways to be dedicated for density transfers on development of a property. The potential for improving or subdividing part or all of a parcel can be expressed in dwelling unit equivalents or other measures of development density or intensity. Known as density transfers, these dwelling unit equivalents may be relocated to other portions of the same parcel or to contiguous land that is part of a common development plan. Dedicated density transfers can also be conveyed to subsequent holders if properly noted as transfer deeds.

CONSERVATION ZONING: This mechanism recognizes the problem of reconciling different, potentially incompatible land uses by preserving natural areas, open spaces, waterways, and/or greenways that function as buffers or transition zones. It can also be called buffer or transition zoning. This type of zoning, for example, can protect waterways by creating buffer zones where no development can take place. Care must be taken to ensure that the use of this mechanism is reasonable and will not destroy the value of a property.

OVERLAY ZONING: An overlay zone and its regulations are established in addition to the zoning classification and regulations already in place. These are commonly used to protect natural or cultural features such as historic areas, unique terrain features, scenic vistas, agricultural areas, wetlands, stream corridors, and wildlife areas.

NEGOTIATED DEDICATIONS: This type of mechanism allows municipalities to negotiate with landowners for certain parcels of land that are deemed beneficial to the protection and preservation of specific stream corridors. This type of mechanism can also be exercised through dedication of greenway lands when a parcel is subdivided. Such dedications would be proportionate to the relationship between the impact of the subdivision on community services and the percentage of land required for dedication-as defined by the US Supreme Court in Dolan v Tigard.

RESERVATION OF LAND: This type of mechanism does not involve any transfer of property rights but simply constitutes an obligation to keep property free from development for a stated period of time. Reservations are normally subject to a specified period of time, such as 6 or 12 months. At the end of this period, if an agreement has not already been reached to transfer certain property rights, the reservation expires.

PLANNED UNIT DEVELOPMENT: A planned unit development allows a mixture of uses. It also allows for flexibility in density and dimensional requirements, making clustered housing and common open space along with addressing environmental conditions a possibility. It emphasizes more planning and can allow for open space and greenway development and connectivity.

CLUSTER DEVELOPMENT: Cluster development refers to a type of development with generally smaller lots and homes close to one another. Clustering can allow for more units on smaller acreages of land, allowing for larger percentages of the property to be used for open space and greenways.

LAND MANAGEMENT

Management is a method of conserving the resources of a specific greenway parcel by an established set of policies called management plans for publicly owned greenway land or through easements with private property owners. Property owners who grant easements retain all rights to the property except those which have been described in the terms of the easement. The property owner is responsible for all taxes associated with the property, less the value of the easement granted. Easements are generally restricted to certain portions of the property, although in certain cases an easement can be applied to an entire parcel of land. Easements are transferable through title transactions, thus the easement remains in effect perpetually.

MANAGEMENT PLANS: The purpose of a management plan is to establish legally binding contracts which define the specific use, treatment, and protection for publicly owned greenway lands. Management plans should identify valuable resources; determine compatible uses for the parcel; determine administrative needs of the parcel, such as maintenance, security, and funding requirements; and recommend short-term and long-term action plans for the treatment and protection of greenway lands.

CONSERVATION EASEMENT: This type of easement generally establishes permanent limits on the use and development of land to protect the natural resources of that land. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Dedicated conservation easements can qualify for both federal income tax deductions and state tax credits. Tax deductions are allowed by the Federal government for donations of certain conservation easements. The donation may reduce the donor's taxable income.

PRESERVATION EASEMENT: This type of easement is intended to protect the historical integrity of a structure or important elements in the landscape by sound management practices. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Preservation easements may qualify for the same federal income tax deductions and state tax credits as conservation easements.

PUBLIC ACCESS EASEMENTS: This type of easement grants public access to a specific parcel of property when a conservation or preservation easement is not necessary. The conditions of use are defined in the terms of the public access easement.

ACQUISITION

Acquisition requires land to be donated or purchased by a government body, public agency, greenway manager, or qualified conservation organization.

DONATION OR TAX INCENTIVES: In this type of acquisition, a government body, public agency, or qualified conservation organization agrees to receive the full title or a conservation easement to a parcel of land at no cost or at a "bargain sale" rate. The donor is then eligible to receive a federal tax deduction of up to 30 to 50 percent of their adjusted gross income. Additionally, North Carolina offers a tax credit of up to 25 percent of the property's fair market value (up to $5000). Any portion of the fair market value not used for tax credits may be deducted as a charitable contribution. Also, property owners may be able to avoid any inheritance taxes, capital gains taxes, and recurring property taxes.

FEE SIMPLE PURCHASE: This is a common method of acquisition where a local government agency or private greenway manager purchases property outright. Fee simple ownership

conveys full title to the land and the entire "bundle" of property rights including the right to possess land, to exclude others, to use land, and to alienate or sell land.

EASEMENT PURCHASE: This type of acquisition is the fee simple purchase of an easement. Full title to the land is not purchased, only those rights granted in the easement agreement. Therefore the easement purchase price is less that the full title value.

PURCHASE / LEASE BACK: A local government agency or private greenway organization can purchase a piece of land and then lease it back to the seller for a specified period of time. This lease may contain restrictions regarding the development and use of the property.

BARGAIN SALE: A property owner can sell property at a price less than the appraised fair market value of the land. Sometimes the seller can derive the same benefits as if the property were donated. Bargain Sale is attractive to sellers when the seller wants cash for the property, the seller paid a low cash price and thus is not liable for high capital gains tax, and/or the seller has a fairly high current income and could benefit from the donation of the property as an income tax deduction.

INSTALLMENT SALE: An installment sale is a sale of property at a gain where at least one payment is to be received after the tax year in which the sale occurs. These are valuable tools to help sellers defer capital gains tax. This provides a potentially attractive option when purchasing land for open space from a possible seller.

OPTION / FIRST RIGHT OF REFUSAL: A local government agency or private organization establishes an agreement with a public agency or private property owner to provide the right of first refusal on a parcel of land that is scheduled to be sold. This form of agreement can be used in conjunction with other techniques, such as an easement to protect the land in the short-term. An option would provide the agency with sufficient time to obtain capital to purchase the property or successfully negotiate some other means of conserving the greenway resource.

PURCHASE OF DEVELOPMENT RIGHTS: A voluntary purchase of development rights involves purchasing the development rights from a private property owner at a fair market value. The landowner retains all ownership rights under current use, but exchanges the rights to develop the property for cash payment.

LAND BANKING: Land banking involves land acquisition in advance of expanding urbanization. The price of an open space parcel prior to development pressures is more affordable to a jurisdiction seeking to preserve open space. A municipality or county might use this technique to develop a greenbelt or preserve key open space or agricultural tracts. The jurisdiction should have a definite public purpose for a land banking project.

CONDEMNATION: The practice of condemning private land for use as a greenway is viewed as a last resort policy. Using condemnation to acquire property or property rights can be avoided if private and public support for the greenway program is present. Condemnation is seldom used for the purpose of dealing with an unwilling property owner. In most cases, condemnation has been exercised when there has been an absentee property ownership, when the title of the property is not clear, or when it becomes apparent that obtaining the consent for purchase would be difficult because there are numerous heirs located in other parts of the United States or different countries.

EMINENT DOMAIN: The right of exercising eminent domain should be done so with caution by the community and only if the following conditions exist: 1) the property is valued by the community as an environmentally sensitive parcel of land, significant natural resource, or critical parcel of land, and as such has been defined by the community as irreplaceable property; 2) written scientific justification for the community's claim about the property's value has been prepared and offered to the property owner; 3) all efforts to negotiate with the property owner for the management, regulation, and acquisition of the property have been exhausted and that the property owner has been given reasonable and fair offers of compensation and has rejected all offers; and 4) due to the ownership of the property, the timeframe for negotiating the acquisition of the property will be unreasonable, and in the interest of pursuing a cost effective method for acquiring the property, the community has deemed it necessary to exercise eminent domain.

EXAMPLE SEWER/GREENWAY EASEMENT

Instrument Prepared By: City Attorney's Office
Brief Description for Index: Sewer/Greenway Easement
Parcel Identifier: _____
Mail After Recording To: City Clerk's Office
P. O. Box 590
Raleigh, N.C. 27602

STATE OF NORTH CAROLINA

COUNTY OF WAKE

GENERAL WARRANTY DEED
EASEMENT FOR SANITARY SEWER AND
GREENWAY PURPOSES

THIS DEED OF EASEMENT, made and executed this _____ day of _____, 19_____, by _____, hereinafter referred to as the "Grantors", to the City of Raleigh, a municipal corporation of the State of North Carolina, hereinafter referred to as the "City";

W I T N E S S E T H:

WHEREAS, the Grantors are the Owners of the land hereinafter described and have agreed to convey to the City, according to the terms set forth below, the easement hereinafter described;

The designation "Grantors" as used herein shall include the singular and plural, as required, and the masculine, feminine and neuter gender as appropriate.

NOW, THEREFORE, in consideration of Ten Dollars ($10.00) and other valuable consideration paid to the Grantors, receipt of which is hereby acknowledged, the Grantors, do hereby grant unto the City, its successors and assigns, the right, privilege and easement in perpetuity to: establish upon and maintain the land, hereinafter described, specifically as a greenway with facilities or improvements which may include trails, litter receptacles, boat launches, gates, trail markers, trail bridges, shelters, and other facilities necessary or convenient thereto and including the right of ingress and egress to the City and members of the general public for greenway maintenance and use; to construct, install, improve, remove, replace, inspect, repair, maintain, and use a system of pipelines or mains for sanitary sewer purposes, together with all the appurtenant facilities and equipment necessary or convenient thereto; subject to the laws and ordinances of the city, in, upon, and across the property of the Grantors described in a deed recorded in Deed Book _____, Page _____, Wake County Registry, which said easement is more particularly described in Exhibit A attached hereto and incorporated herein.

EXAMPLE SEWER/GREENWAY EASEMENT *(CONTINUED)*

TO HAVE AND TO HOLD the aforesaid easement interest and all privileges and rights thereunto belonging to the City of Raleigh, its successors and assigns forever.

THE FURTHER TERMS AND CONDITIONS of the easement interest herein conveyed are as follows:

1. The City is authorized hereunder to remove and keep removed from the easement all trees, shrubs, underbrush, and part thereof, or other obstructions as necessary to maintain, repair or protect said greenway and sanitary sewer lines and appurtenances or as necessary for the prevention or treatment of disease and for other good husbandry practices. Except as hereinabove allowed there shall be no other removal, destruction or cutting of trees, shrubs or other vegetation from the easement interest herein described and conveyed by any person or entity.

2. Nothing herein shall be construed to grant to the City of Raleigh or the general public any right of access through or over any property of the Grantors except that lying within the easement interest herein described and conveyed.

3. Following the installation of a sanitary sewer main and appurtenant facilities within the permanent easement hereinabove referenced and described, any and all temporary construction easement interest conveyed herein to the City shall terminate; and further, the City shall regrade, mulch, and reseed all damaged lands lying with the permanent and temporary easements, to the end that the same shall be restored to a condition as good as or better than that before construction.

4. Except as herein authorized, no building, fence, sign, or other structure nor any vehicular surface area shall be erected within the easement interest herein described and conveyed.

5. There shall be no dumping of ashes, garbage, waste, or other unsightly or offensive material on the easement interest herein described and conveyed.

6. There shall be no excavation, dredging, removal of loam, rock, sand, gravel or other material, nor any building of roads or other change in the natural topography of the easement interest herein described and conveyed, excepting for the construction and maintenance of the greenway and the sanitary sewer system undertaken by the City of Raleigh or its agents.

7. The City of Raleigh shall have the right and duty to maintain this Greenway Easement in a clean, natural, and undisturbed state, consistent with the City's master Greenway Plan.

EXAMPLE SEWER/GREENWAY EASEMENT *(CONTINUED)*

8. The City agrees to hold Grantors harmless from liability for personal injury or property damage arising out of the use of the easement for greenway purposes; provided Grantors shall not be held harmless from liability caused by the active conduct or instrumentalities of the Grantors, their agents, invitees, or contractors; or by acts of Grantors, their agents, invitees or contractors which violate the terms and conditions of this Deed of Easement.

The City does not waive or forfeit the right to take action to insure compliance with the terms, conditions and purposes of this easement by a prior failure to act.

The City reserves the right to enter the subject property at reasonable times in order to monitor compliance with the terms, conditions, restrictions, and purposes of this easement.

The Grantors expressly reserve the right to continue the use of the property for all purposes not inconsistent with this easement.

The Grantors agree that the terms, conditions and restrictions of this easement will be inserted by them in any subsequent deed or other legal instrument by which they divest themselves of either the fee simple title to, or of their possessory interest in, the subject property.

TO HAVE AND TO HOLD the said right, privilege and easement herein granted to the City of Raleigh, its successors and assigns forever. The covenants agreed to and the terms, conditions and restrictions imposed herein shall be binding upon the said Grantors and their agents, personal representatives, heirs and assigns, and all other successors to them in interest and shall continue as a servitude running in perpetuity with the above described land.

AND the said Grantors covenant that they are vested of the premises in fee and have the right to convey the same in fee simple; that the same are free from encumbrances except as hereinafter stated; and that they will warrant and defend title to the same against the claims of all persons whomsoever, subject only to the following exceptions:

IN WITNESS WHEREOF, the said Grantors have hereunto set their hand and seals the day and year first above written.

WITNESS:

_____ _____(SEAL)

_____(SEAL)

Approved as to Form:

_____(SEAL)

_____ _____(SEAL)

(Deputy) City Attorney

EXAMPLE SEWER/GREENWAY EASEMENT *(CONTINUED)*

STATE OF NORTH CAROLINA — INDIVIDUAL

COUNTY OF _____

I, _____, a Notary Public do hereby certify that _____, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

This the _____day of _____, 19_____.

_____
Notary Public

(SEAL)

My Commission Expires:

STATE OF NORTH CAROLINA — PARTNERSHIP (INDIVIDUAL)

COUNTY OF _____

I, _____, a Notary Public do hereby certify that _____, general partner of_____, personally appeared before me this day and acknowledged the execution, with proper authorization, of the foregoing instrument, all in accordance with partnership instruments recorded in Book _____ Page _____ in the _____ County Registry and that the instrument is the act and deed of the partnership.

This the _____day of _____19____.

_____
Notary Public

(SEAL)

My Commission Expires:

NORTH CAROLINA — CORPORATE

COUNTY OF _____

This is to certify that on the _____day of _____, 19_____, before me personally came _____, with whom I am personally acquainted, who, being by me duly sworn, says that (s)he is the (assistant) secretary, and _____ is the (vice) president of _____, the corporation described in and which executed the foregoing instrument; that (s)he knows the common seal of said corporation; that the seal affixed to the foregoing instrument is said common seal, and the name of the corporation was subscribed thereto by the said (assistant) secretary, and that the said (assistant) secretary and (vice) president subscribed their names thereto, and said common seal was affixed, all by order of the Board of Directors of said corporation, and that the said instrument is the act and deed of said corporation.

WITNESS my hand and official seal this the _____day of _____19_____.

_____
Notary Public

(SEAL)

My Commission Expires:

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STATE + FEDERAL POLICIES D

CHAPTER OUTLINE:

OVERVIEW

A number of federal and state pedestrian policies have been developed in recent years. This appendix covers a number of these policies that are intended to better integrate walking and bicycling into transportation infrastructure.

UNITED STATES DEPARTMENT OF TRANSPORTATION BICYCLE AND PEDESTRIAN POLICY

A United States Department of Transportation (US DOT) policy statement regarding the integration of bicycling and walking into transportation infrastructure recommends that, "bicycling and walking facilities will be incorporated into all transportation projects" unless exceptional circumstances exist. The Policy Statement was drafted by the U.S. Department of Transportation in response to Section 1202 (b) of the Transportation Equity Act for the 21st Century (TEA-21) with the input and assistance of public agencies, professional associations and advocacy groups. USDOT hopes that public agencies, professional associations, advocacy groups, and others adopt this approach as a way of committing themselves to integrating bicycling and walking into the transportation mainstream. The full statement reads as follows, with some minor adjustments for applicability in Columbia:

1. Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

- Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.
- The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.

- Where sparsity of population or other factors indicate an absence of need. For example, on low volume, low speed residential streets, or streets with severe topographic or natural resource constraints.

2. In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians to operate. Rumble strips are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of four feet in which a bicycle may safely operate.

3. Sidewalks, shared use paths, street crossings (including over- and undercrossings), pedestrian signals, signs, street furniture, transit stops and facilities, and all connecting pathways shall be designed, constructed, operated and maintained so that all pedestrians, including people with disabilities, can travel safely and independently.

4. The design and development of the transportation infrastructure shall improve conditions for bicycling and walking through the following additional steps:

- Planning projects for the long-term. Transportation facilities are long-term investments that remain in place for many years. The design and construction of new facilities that meet the criteria in item 1) above should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements. For example, a bridge that is likely to remain in place for 50 years, might be built with sufficient width for safe bicycle and pedestrian use in anticipation that facilities will be available at either end of the bridge even if that is not currently the case.
- Addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them. Even where bicyclists and pedestrians may not commonly use a particular travel corridor that is being improved or constructed, they will likely need to be able to cross that corridor safely and conveniently. Therefore, the design of intersections

and interchanges shall accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.
- Getting exceptions approved at a senior level. Exceptions for the non-inclusion of bikeways and walkways shall be approved by a senior manager and be documented with supporting data that indicates the basis for the decision.
- Designing facilities to the best currently available standards and guidelines. The design of facilities for bicyclists and pedestrians should follow design guidelines and standards that are commonly used, such as the AASHTO Guide for the Development of Bicycle Facilities, AASHTO's A Policy on Geometric Design of Highways and Streets, and the ITE Recommended Practice "Design and Safety of Pedestrian Facilities. (Many of these guidelines are summarized in Chapter 4: Bicycle Facility Standards)

(Retrieved from http://www.fhwa.dot.gov/environment/bikeped/design.htm on 5/6/2008)

UNITED STATES DEPARTMENT OF TRANSPORTATION POLICY STATEMENT ON BICYCLE AND PEDESTRIAN ACCOMMODATION REGULATIONS AND RECOMMENDATIONS (MARCH 2010)

PURPOSE

The United States Department of Transportation (DOT) is providing this Policy Statement to reflect the Department's support for the development of fully integrated active transportation networks. The establishment of well-connected walking and bicycling networks is an important component for livable communities, and their design should be a part of Federal-aid project developments. Walking and bicycling foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use. Legislation and regulations exist that require inclusion of bicycle and pedestrian policies and projects into transportation plans and project development. Accordingly, transportation agencies should plan, fund, and implement improvements to their walking and bicycling networks, including linkages to

transit. In addition, DOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate. Transportation programs and facilities should accommodate people of all ages and abilities, including people too young to drive, people who cannot drive, and people who choose not to drive.

POLICY STATEMENT

The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes.

AUTHORITY

This policy is based on various sections in the United States Code (U.S.C.) and the Code of Federal Regulations (CFR) in Title 23—Highways, Title 49—Transportation, and Title 42—The Public Health and Welfare. These sections, provided in the Appendix, describe how bicyclists and pedestrians of all abilities should be involved throughout the planning process, should not be adversely affected by other transportation projects, and should be able to track annual obligations and expenditures on nonmotorized transportation facilities.

RECOMMENDED ACTIONS

The DOT encourages States, local governments, professional associations, community organizations, public transportation agencies, and other government agencies, to adopt similar policy statements on bicycle and pedestrian accommodation as an indication of their commitment to accommodating bicyclists and pedestrians as an integral element of the

transportation system. In support of this commitment, transportation agencies and local communities should go beyond minimum design standards and requirements to create safe, attractive, sustainable, accessible, and convenient bicycling and walking networks. Such actions should include:

- Considering walking and bicycling as equals with other transportation modes: The primary goal of a transportation system is to safely and efficiently move people and goods. Walking and bicycling are efficient transportation modes for most short trips and, where convenient intermodal systems exist, these nonmotorized trips can easily be linked with transit to significantly increase trip distance. Because of the benefits they provide, transportation agencies should give the same priority to walking and bicycling as is given to other transportation modes. Walking and bicycling should not be an afterthought in roadway design.

- Ensuring that there are transportation choices for people of all ages and abilities, especially children: Pedestrian and bicycle facilities should meet accessibility requirements and provide safe, convenient, and interconnected transportation networks. For example, children should have safe and convenient options for walking or bicycling to school and parks. People who cannot or prefer not to drive should have safe and efficient transportation choices.

- Going beyond minimum design standards: Transportation agencies are encouraged, when possible, to avoid designing walking and bicycling facilities to the minimum standards. For example, shared-use paths that have been designed to minimum width requirements will need retrofits as more people use them. It is more effective to plan for increased usage than to retrofit an older facility. Planning projects for the long-term should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements.

- Integrating bicycle and pedestrian accommodation on new, rehabilitated, and limited-access bridges: DOT encourages bicycle

and pedestrian accommodation on bridge projects including facilities on limited-access bridges with connections to streets or paths.

- Collecting data on walking and biking trips: The best way to improve transportation networks for any mode is to collect and analyze trip data to optimize investments. Walking and bicycling trip data for many communities are lacking. This data gap can be overcome by establishing routine collection of nonmotorized trip information. Communities that routinely collect walking and bicycling data are able to track trends and prioritize investments to ensure the success of new facilities. These data are also valuable in linking walking and bicycling with transit.

- Setting mode share targets for walking and bicycling and tracking them over time: A byproduct of improved data collection is that communities can establish targets for increasing the percentage of trips made by walking and bicycling.

- Removing snow from sidewalks and shared-use paths: Current maintenance provisions require pedestrian facilities built with Federal funds to be maintained in the same manner as other roadway assets. State Agencies have generally established levels of service on various routes especially as related to snow and ice events.

Improving nonmotorized facilities during maintenance projects: Many transportation agencies spend most of their transportation funding on maintenance rather than on constructing new facilities. Transportation agencies should find ways to make facility improvements for pedestrians and bicyclists during resurfacing and other maintenance projects.

CONCLUSION

Increased commitment to and investment in bicycle facilities and walking networks can help meet goals for cleaner, healthier air; less congested roadways; and more livable, safe, cost-efficient communities. Walking and bicycling provide low-cost mobility options that place fewer demands on local roads and highways. DOT recognizes that safe and convenient walking and bicycling facilities may look different

depending on the context — appropriate facilities in a rural community may be different from a dense, urban area. However, regardless of regional, climate, and population density differences, it is important that pedestrian and bicycle facilities be integrated into transportation systems. While DOT leads the effort to provide safe and convenient accommodations for pedestrians and bicyclists, success will ultimately depend on transportation agencies across the country embracing and implementing this policy.

Ray LaHood,
United States Secretary of Transportation

FHWA MEMORANDUM ON MAINSTREAMING BICYCLE AND PEDESTRIAN PROJECTS

(See pages B-8 through B-10)

U.S. Department of Transportation Federal Highway Administration

Memorandum

Subject: ACTION: Transmittal of Guidance on Bicycle and Pedestrian Provisions of the Federal-aid Program

Date: February 24, 1999

From: Kenneth R. Wykle
Federal Highway Administrator

In reply, refer to: HEPH-30

To:
Division Administrators
Federal Lands Highway Division Engineers

This memorandum transmits the Federal Highway Administration's (FHWA) Guidance on the Bicycle and Pedestrian Provisions of the Federal-aid Program and reaffirms our strong commitment to improving conditions for bicycling and walking. The nonmotorized modes are an integral part of the mission of FHWA and a critical element of the local, regional, and national transportation system. Bicycle and pedestrian projects and programs are eligible for but not guaranteed funding from almost all of the major Federal-aid funding programs. We expect every transportation agency to make accommodation for bicycling and walking a routine part of their planning, design, construction, operations and maintenance activities.

The Transportation Equity Act for the 21st Century (TEA-21) continues the call for the mainstreaming of bicycle and pedestrian projects into the planning, design, and operation of our Nation's transportation system. Under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), Federal spending on bicycle and pedestrian improvements increased from $4 million annually to an average of $160 million annually. Nevertheless, the level of commitment to addressing the needs of bicyclists and pedestrians varies greatly from State to State.

The attached guidance explains how bicycle and pedestrian improvements can be routinely included in federally funded transportation projects and programs. I would ask each division office to pass along this guidance to the State DOT and to meet with them to discuss ways of expediting the implementation of bicycle and pedestrian projects. With the guidance as a basis for action, States can then decide the most appropriate ways of mainstreaming the inclusion of bicycle and pedestrian projects and programs.

Bicycling and walking contribute to many of the goals for our transportation system we have at FHWA and at the State and local levels. Increasing bicycling and walking offers the potential for cleaner air, healthier people, reduced congestion, more liveable communities, and more efficient use of precious road space and resources. That is why funds in programs such as Congestion Mitigation and Air Quality Improvement, Transportation Enhancements, and the National Highway System, are eligible to be used for bicycling and

walking improvements that will encourage use of the two modes.

We also have a responsibility to improve the safety of bicycling and walking as the two modes represent more than 14 percent of the 41,000 traffic fatalities the nation endures each year. Pedestrian and bicycle safety is one of FHWA's top priorities and this is reflected in our 1999 Safety Action Plan. As the attached guidance details, TEA-21 has opened up the Hazard Elimination Program to a broader array of bicycle, pedestrian, and traffic calming projects that will improve dangerous locations. The legislation also continues funding for critical safety education and enforcement activities under the leadership of the National Highway Traffic Safety Administration. If we are successful in improving the real and perceived safety of bicyclists and pedestrians, we will also increase use.

You will see from the attached guidance that the Federal-aid Program, as amended by TEA-21, offers an extraordinary range of opportunities to improve conditions for bicycling and walking. Initiatives such as the Transportation and Community and System Preservation Pilot Program and the Access to Jobs program offer exciting new avenues to explore.

Bicycling and walking ought to be accommodated, as an element of good planning, design, and operation, in all new transportation projects unless there are substantial safety or cost reasons for not doing so. Later this year (1999), FHWA will issue design guidance language on approaches to accommodating bicycling and pedestrian travel that will, with the cooperation of AASHTO, ITE, and other interested parties, spell out ways to build bicycle and pedestrian facilities into the fabric of our transportation infrastructure from the outset. We can no longer afford to treat the two modes as an afterthought or luxury.

The TEA-21 makes a great deal possible. However, in the area of bicycling and walking in particular, we must work hard to ensure good intentions and fine policies translate quickly and directly into better conditions for bicycling and walking. While FHWA has limited ability to mandate specific outcomes, I am committed to ensuring that we provide national leadership in three critical areas.

- The FHWA will encourage the development and implementation of bicycle and pedestrian plans as part of the overall transportation planning process. Every statewide and metropolitan transportation plan should address bicycling and walking as an integral part of the overall system, either through the development of a separate bicycle and pedestrian element or by incorporating bicycling and walking provisions throughout the plan. Further, I am instructing each FHWA division office to closely monitor the progress of projects from the long-range transportation plans to the STIPs and TIPs. In the coming months, FHWA will disseminate exemplary projects, programs, and plans, and we will conduct evaluations in selected States and MPOs to determine the effectiveness of the planning process.

- The FHWA will promote the availability and use of the full range of streamlining mechanisms to increase project delivery. The tools are in place for States and local government agencies to speed up the delivery of bicycle and pedestrian projects - it makes no sense to treat installation of a bicycle rack or curb cut the same way we treat a new Interstate highway project - and our division offices must take a lead in promoting and administering these procedures.

- The FHWA will help coordinate the efforts of Federal, State, metropolitan, and other relevant agencies to improve conditions for bicycling and walking. Once again, our division offices must ensure that those involved in implementing bicycle and pedestrian projects at the State and local level are given maximum opportunity to get their job done, unimpeded by regulations and red tape from the Federal level. I am asking each of our division offices to facilitate a dialogue among each State's bicycle and pedestrian coordinator, Transportation Enhancements program manager, Recreational Trails Program administrator, and their local and FHWA counterparts to identify and remove obstacles to the implementation of bicycle and pedestrian projects and programs.

In less than a decade, bicycling and walking have gone from being described by my predecessor Tom Larson as "the forgotten modes" to becoming a serious part of our national transportation system. The growing acceptance of bicycling and walking as modes to be included as part of the transportation mainstream started with passage of ISTEA in 1991 and was given a considerable boost by the Congressionally-mandated National Bicycling and Walking Study. That study, released in 1994, challenges the U.S. Department of Transportation to double the percentage of trips made by foot and bicycle while simultaneously reducing fatalities and injuries suffered by these modes by 10 percent - and we remain committed to achieving these goals.

The impetus of ISTEA and the National Bicycling and Walking Study is clearly reinforced by the bicycle and pedestrian provisions of the TEA-21. The legislation confirms the vital role bicycling and walking must play in creating a balanced, accessible, and safe transportation system for all Americans.

FHWA Guidance (1999) - Bicycle and Pedestrian Provisions of Federal Transportation Legislation

To provide Feedback, Suggestions, or Comments for this page contact Gabe Rousseau at gabe.rousseau@dot.gov.

NCDOT JULY 2009 BOARD OF TRANSPORTATION: DIVISION OF BICYCLE AND PEDESTRIAN TRANSPORTATION COMPLETE STREETS POLICY

A. DEFINITION

Complete Streets is North Carolina's approach to interdependent, multi-modal transportation networks that safely accommodate access and travel for all users.

B. POLICY STATEMENT

Transportation, quality of life, and economic development are all undeniably connected through well-planned, well-designed, and context sensitive transportation solutions. To NCDOT, the designations "well-planned", "well-designed" and "context-sensitive" imply that transportation is an integral part of a comprehensive network that safely supports the needs of the communities and the traveling public that are served.

The North Carolina Department of Transportation, in its role as stewards over the transportation infrastructure, is committed to:

- providing an efficient multi-modal transportation network in North Carolina such that the access, mobility, and safety needs of motorists, transit users, bicyclists, and pedestrians of all ages and abilities are safely accommodated;

- caring for the built and natural environments by promoting sustainable development practices that minimize impacts on natural resources, historic, businesses, residents, scenic and other community values, while also recognizing that transportation improvements have significant potential to contribute to local, regional, and statewide quality of life and economic development objectives;

- working in partnership with local government agencies, interest groups, and the public to plan, fund, design, construct, and manage complete street networks that sustain mobility while accommodating walking, biking, and transit opportunities safely.

This policy requires that NCDOT's planners and designers will consider and incorporate multimodal alternatives in the design and improvement of all appropriate transportation projects within a growth area of a town or city unless exceptional circumstances exist. Routine maintenance projects maybe excluded from this requirement; if an appropriate source of funding is not available.

C. PURPOSE

This policy sets forth the protocol for the development of transportation networks that encourage non-vehicular travel without compromising the safety, efficiency, or function of the facility. The purpose of this policy is to guide existing decision-making and design processes to ensure that all users are routinely considered during the planning, design, construction, funding and operation of North Carolina's transportation network.

D. SCOPE AND APPLICABILITY

This policy generally applies to facilities that exist in urban or suburban areas, however it does not necessarily exclude rural setting; and is viewed as a network that functions in an interdependent manner.

There are many factors that must be considered when defining the facility and the degree to which this policy applies, e.g., number of lanes, design speeds, intersection spacing, medians, curb parking, etc. Therefore, the applicability of this policy, as stated, should be construed as neither comprehensive nor conclusive. Each facility must be evaluated for proper applicability.

Notwithstanding the exceptions stated herein, all transportation facilities within a growth area of a town or city funded by or through NCDOT, and planned, designed, or constructed on state maintained facilities, must adhere to this policy.

E. APPROACH

It is the Department's commitment to collaborate with cities, towns, and communities to ensure pedestrian, bicycle, and transit options are included as an integral part of their total transportation vision. As a partner in the development and realization of their visions, the Department desires to assist localities, through the facilitation of long-range planning, to optimize connectivity, network interdependence, context sensitive options, and multimodal alternatives.

F. RELATED POLICIES

This policy builds on current practices and encourages creativity for considering and providing multi-modal options within transportation projects, while achieving safety and efficiency.

Specific procedural guidance includes:

- *Bicycle Policy (adopted April 4, 1991)*
- *Highway Landscape Planting Policy (dated 6/10/88)*
- *Board of Transportation Resolution: Bicycling & Walking in North Carolina, A Critical Part of the Transportation System (adopted September 8, 2000)*
- *Guidelines for Planting within Highway Right-of-Way*
- *Bridge Policy (March 2000)*
- *Pedestrian Policy Guidelines –Sidewalk Location (Memo from Larry Goode, February 15, 1995)*
- *Pedestrian Policy Guidelines (effective October 1, 2000 w/ Memo from Len Hill, September 28, 2000)*
- *NCDOT Context Sensitive Solutions Goals and Working Guidelines (created 9-23-02; updated 9-8-03)*

G. EXCEPTIONS TO POLICY

It is the Department's expectation that suitable multimodal alternatives will be incorporated in all appropriate new and improved infrastructure projects. However, exceptions to this policy will be considered where exceptional circumstances that prohibit adherence to this policy exist. Such exceptions include, but are not limited to:

- facilities that prohibit specific users by law from using them,
- areas in which the population and employment densities or level of transit service around the facility does not justify the incorporation of multimodal alternatives,

It is the Department's expectation that suitable multimodal alternatives will be incorporated as appropriate in all new and improved infrastructure projects within a growth area of a town or city.

As exceptions to policy requests are unique in nature, each will be considered on a case-by-case basis. Each exception must be approved by the Chief Deputy Secretary.

Routine maintenance projects maybe excluded from this requirement; if an appropriate source of funding is not available.

H. PLANNING AND DESIGN GUIDELINES

The Department recognizes that a well-planned and designed transportation system that is responsive to its context and meets the needs of its users is the result of thoughtful planning. The Department further recognizes the need to provide planners, designers and decision-makers with a framework for evaluating and incorporating various design elements into the planning, design, and construction phases of its transportation projects. To this end, a multi-disciplined team of stakeholders, including transportation professionals, interest groups, and others, as appropriate, will be assembled and charged with developing comprehensive planning and design guidelines to support this policy.

These guidelines will describe the project development process and incorporate transparency and accountability where it does not currently exist; describe how (from a planning and design perspective) pedestrians, bicyclists, transit, and motor vehicles will share roads safely; and provide special design elements and traffic management strategies to address unique circumstances.

An expected delivery date for planning and design guidelines will be set upon adoption of this policy.

I. POLICY DISTRIBUTION

It is the responsibility of all employees to comply with Departmental policies. Therefore, every business unit and appropriate private service provider will be required to maintain a complete set of these policies. The Department shall periodically update departmental guidance to ensure that an accurate and up-to-date information is maintained and housed in a policy management system.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION BOARD OF TRANSPORTATION RESOLUTION: BICYCLING AND WALKING IN NORTH CAROLINA. A CRITICAL PART OF THE TRANSPORTATION SYSTEM

(ADOPTED BY THE BOARD OF TRANSPORTATION ON SEPTEMBER 8, 2000)

The North Carolina Board of Transportation strongly reaffirms its commitment to improving conditions for bicycling and walking, and recognizes nonmotorized modes of transportation as critical elements of the local, regional, and national transportation system.

WHEREAS, increasing bicycling and walking offers the potential for cleaner air, healthier people, reduced congestion, more liveable communities, and more efficient use of road space and resources; and

WHEREAS, crashes involving bicyclists and pedestrians represent more than 14 percent of the nation's traffic fatalities; and

WHEREAS, the Federal Highway Administration (FHWA) in its policy statement "Guidance on the Bicycle and Pedestrian Provisions of the Federal-Aid Program" urges states to include bicycle and pedestrian accommodations in its programmed highway projects; and

WHEREAS, bicycle and pedestrian projects and programs are eligible for funding from almost all of the major Federal-aid funding programs; and

WHEREAS, the Transportation Equity Act for the 21st Century (TEA-21) calls for the mainstreaming of bicycle and pedestrian projects into the planning, design and operation of our Nation's transportation system;

NOW, THEREFORE, BE IT RESOLVED, the North Carolina Board of Transportation concurs that bicycling and walking accommodations shall be a routine part of the North Carolina Department of Transportation's planning, design, construction, and operations activities and supports the Department's study and consideration of methods of improving the inclusion of these modes into the everyday operations of North Carolina's transportation system; and

BE IT FURTHER RESOLVED, North Carolina cities and towns are encouraged to make bicycling and pedestrian improvements an integral part of their transportation planning and programming.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ADMINISTRATIVE ACTION TO INCLUDE LOCAL ADOPTED GREENWAYS PLANS IN THE NCDOT HIGHWAY PLANNING PROCESS

(ADOPTED JANUARY 1994)

In 1994 the NCDOT adopted administrative guidelines to consider greenways and greenway crossings during the highway planning process. This policy was incorporated so that critical corridors which have been adopted by localities for future greenways will not be severed by highway construction. Following are the text for the Greenway Policy and Guidelines for implementing it.

In concurrence with the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Board of Transportation's Bicycle Policy of 1978 (updated in 1991) and Pedestrian Policy of 1993, the North Carolina Department of Transportation recognizes the importance of incorporating local greenways plans into its planning process for the development and improvement of highways throughout North Carolina.

NCDOT Responsibilities: The Department will incorporate locally adopted plans for greenways into the ongoing planning processes within the Statewide Planning (thoroughfare plans) and the Planning and Environmental (project plans) Branches of the Division of Highways. This incorporation of greenway plans will be consistent throughout the department. Consideration will be given to including the greenway access as a part of the highway improvement.

Where possible, within the policies of the Department, within the guidelines set forth in provisions for greenway crossings, or other greenway elements, will be made as a part of the highway project or undertaken as an allowable local expenditure.

Local Responsibilities: Localities must show the same commitment to building their adopted greenway plans as they are requesting when they ask the state to commit to providing for a certain segment of that plan. It is the responsibility of each locality to notify the Department of greenway planning activity and adopted greenway plans and to update the Department with all adopted additions and changes in existing plans.

It is also the responsibility of each locality to consider the adopted transportation plan in their greenways planning and

include its adopted greenways planning activities within their local transportation planning process. Localities should place in priority their greenways construction activities and justify the transportation nature of each greenway segment. When there are several planned greenway crossings of a proposed highway improvement, the locality must provide justification of each and place the list of crossings in priority order. Where crossings are planned, transportation rights of way should be designated or acquired separately to avoid jeopardizing the future transportation improvements.

GUIDELINES FOR NCDOT TO COMPLY WITH ADMINISTRATIVE DECISION TO INCORPORATE LOCAL GREENWAYS INTO HIGHWAY PLANNING PROCESS

- Thoroughfare plans will address the existence of greenways planning activity, which has been submitted by local areas. Documentation of mutually agreed upon interface points between the thoroughfare plan and a greenway plan will be kept, and this information will become a part of project files.

- Project Planning Reports will address the existence of locally adopted greenways segment plans, which may affect the corridor being planned for a highway improvement. It is, however, the responsibility of the locality to notify the Department of the adopted greenways plans (or changes to its previous plans) through its current local transportation plan, as well as its implementation programs.

- Where local greenways plans have not been formally adopted or certain portions of the greenways plans have not been adopted, the Department may note this greenway planning activity but is not required to incorporate this information into its planning reports.

- Where the locality has included adopted greenways plans as a part of its local transportation plan and a segment (or segments) of these greenways fall within the corridor of new highway construction or a highway improvement project, the feasibility study and/or project planning report for this highway improvement will consider the effects of the proposed highway improvement upon the greenway in the same manner as it considers other planning characteristics of the project corridor, such as archeological features or land use.

- Where the locality has justified the transportation versus the leisure use importance of a greenway segment and there is no greenway alternative of equal importance nearby, the project planning report will suggest inclusion of the greenway crossing, or appropriate greenway element, as an incidental part of the highway expenditure.

- Where the locality has not justified the transportation importance of a greenway segment, the greenway crossing, or appropriate greenway element, may be included as a part of the highway improvement plan if the local government covers the cost.

- A locality may add any appropriate/acceptable greenway crossing or greenway element at their own expense to any highway improvement project as long as it meets the design standards of the NCDOT.

- The NCDOT will consider funding for greenway crossings, and other appropriate greenway elements only if the localities guarantee the construction of and/or connection with other greenway segments. This guarantee should be in the form of inclusion in the local capital improvements program or NCDOT/municipal agreement.

- If the state pays for the construction of a greenway incidental to a highway improvement and the locality either removes the connecting greenway segments from its adopted greenways plans or decides not to construct its agreed upon greenway segment, the locality will reimburse the state for the cost of the greenway incidental feature. These details will be handled through a municipal agreement.

- Locality must accept maintenance responsibilities for state-built greenways, or portions thereof. Details will be handled through a municipal agreement.

NCDOT PEDESTRIAN POLICY GUIDELINES

(See pages B-19 through B-20)

DEPARTMENT OF TRANSPORTATION
PEDESTRIAN POLICY GUIDELINES
EFFECTIVE OCTOBER 1, 2000

These guidelines provide an updated procedure for implementing the Pedestrian Policy adopted by the Board of Transportation August 1993 and the Board of Transportation Resolution September 8, 2000. The resolution reaffirms the Department's commitment to improving conditions for bicycling and walking, and recognizes non-motorized modes of transportation as critical elements of the local, regional, and national transportation system. The resolution encourages North Carolina cities and towns to make bicycling and pedestrian improvements an integral part of their transportation planning and programming.

REQUIREMENTS FOR DOT FUNDING:

REPLACEMENT OF EXISTING SIDEWALKS:

The Department will pay 100% of the cost to replace an existing sidewalk that is removed to facilitate the widening of a road.

TIP INCIDENTAL PROJECTS:

DEFINED: Incidental pedestrian projects are defined as TIP projects where pedestrian facilities are included as part of the roadway project.

REQUIREMENTS:

1. The municipality and/or county notifies the Department in writing of its desire for the Department to incorporate pedestrian facilities into project planning and design. Notification states the party's commitment to participate in the cost of the facility as well as being responsible for all maintenance and liability. Responsibilities are defined by agreement. Execution is required prior to contract let.

   The municipality is responsible for evaluating the need for the facility (ie: generators, safety, continuity, integration, existing or projected traffic) and public involvement.

2. Written notification must be received by the **Project Final Field Inspection (FFI) date**. Notification should be sent to the Deputy Highway Administrator - Preconstruction with a copy to the Project Engineer and the Agreements Section of the Program Development Branch. Requests received after the project FFI date will be incorporated into the TIP project, if feasible, and only if the requesting party commits by agreement to pay 100% of the cost of the facility.

3. The Department will review the feasibility of including the facility in our project and will try to accommodate all requests where the Department has acquired appropriate right of way on curb and gutter sections and the facility can be installed in the current project berm width. The standard project section is a 10-ft berm (3.0-meter) that accommodates a 5-ft sidewalk. In accordance with

AASHTO standards, the Department will construct 5-ft sidewalks with wheelchair ramps. Betterment cost (ie: decorative pavers) will be a Municipal responsibility.

4. If the facility is not contained within the project berm width, the Municipality is responsible for providing the right of way and/or construction easements as well as utility relocations, at no cost to the Department. This provision is applicable to all pedestrian facilities including multi-use trails and greenways.

5. A cost sharing approach is used to demonstrate the Department's and the municipality's/county's commitment to pedestrian transportation (sidewalks, multi-use trails and greenways). The matching share is a sliding scale based on population as follows:

MUNICIPAL POPULATION	DOT PARTICIPATION	LOCAL PARTICIPATION
> 100,000	50%	50%
50,000 to 100,000	60%	40%
10,000 to 50,000	70%	30%
< 10,000	80%	20%

Note: The cost of bridges will not be included in the shared cost of the pedestrian installation if the Department is funding the installation under provision 6 - pedestrian facilities on bridges.

6. For bridges on streets with curb and gutter approaches, the Department will fund and construct sidewalks on both sides of the bridge facility if the bridge is less than 200 feet in length. If the bridge is greater than 200 feet in length, the Department will fund and construct a sidewalk on one side of the bridge structure. The bridge will also be studied to determine the costs and benefits of constructing sidewalks on both sides of the structure. If in the judgement of the Department sidewalks are justified, funding will be provided for installation. The above provision is also applicable to dual bridge structures. For dual bridges greater than 200 ft in length, a sidewalk will be constructed on the outside of one bridge structure. The bridges will also be studied to determine if sidewalks on the outside of both structures are justified.

7. FUNDING CAPS are no longer applicable.

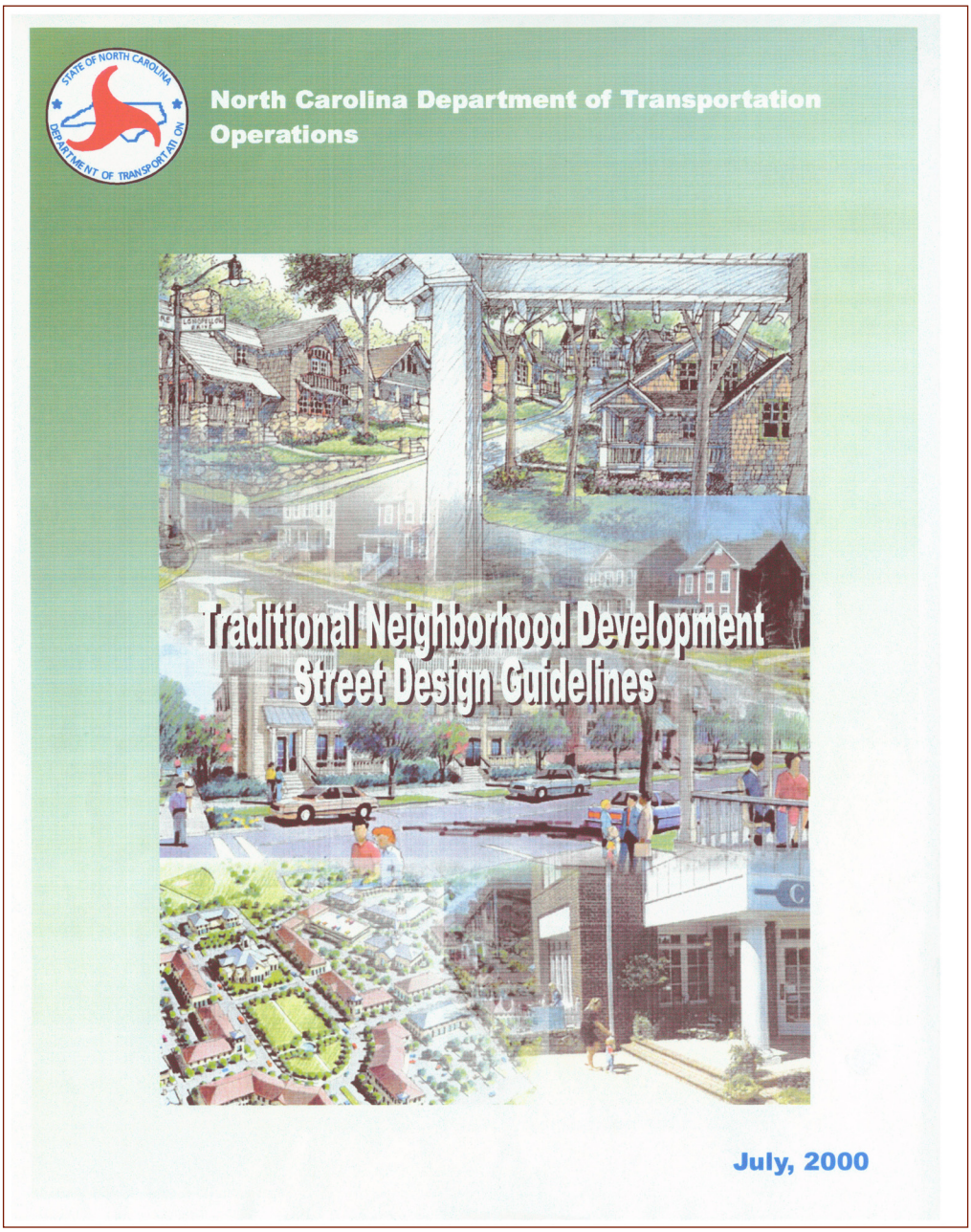
8. This policy does not commit the Department to the installation of facilities in the Department's TIP projects where the pedestrian facility causes an unpractical design modification, is not in accordance with AASHTO standards, creates an unsafe situation, or in the judgement of the Department is not practical to program.

<u>INDEPENDENT PROJECTS</u>

DEFINED: The DOT has a separate category of funds for all independent pedestrian facility projects in North Carolina where installation is unrelated to a TIP roadway project. An independent pedestrian facility project will be administered in accordance with Enhancement Program Guidelines.

NCDOT'S TRADITIONAL NEIGHBORHOOD DEVELOPMENT STREET DESIGN GUIDELINES

These guidelines are available for proposed TND developments and permits localities and developers to design certain roadways according to TND guidelines rather than the conventional subdivision street standards. The guidelines recognize that in TND developments, mixed uses are encouraged and pedestrians and bicyclists are accommodated on multi-mode/shared streets.



NCDOT ONLINE PEDESTRIAN PLANNING AND DESIGN RESOURCES LIST

Developing a Pedestrian Safety Action Plan Workshop *June 2008*

Useful On-Line Pedestrian Planning and Design Resources

NCDOT Division of Bicycle & Pedestrian Transportation	***http://www.ncdot.org/transit/bicycle/***
Board of Transportation Resolution on Mainstreaming	*http://www.ncdot.org/transit/bicycle/laws/laws_resolution.html*
NCDOT Pedestrian Policy Guidelines	*http://www.ncdot.org/transit/bicycle/laws/ped_guide.pdf*
NCDOT Greenways - Administrative Process	*http://www.ncdot.org/transit/bicycle/laws/laws_greenway_admin.html*
Funding	*http://www.ncdot.org/transit/bicycle/funding/funding_intro.html*
Project Types	*http://www.ncdot.org/transit/bicycle/projects/project_types/bpt_intro.html*
Crash Data	*http://www.ncdot.org/transit/bicycle/safety/safety_crashdata.html*
DBPT Long Range Plan	*http://www.ncdot.org/transit/bicycle/projects/intro/projects_long_range.html*
Safe Routes to School Program	*http://www.ncdot.org/transit/bicycle/saferoutes/SafeRoutes.html*
NCDOT Division of Highways	***http://www.ncdot.org/doh/***
Alternative Delivery Unit – Publications for Download	***http://www.ncdot.org/doh/preconstruct/altern/value/manuals/***
Bridge Policy 2000	*http://www.ncdot.org/doh/preconstruct/altern/value/manuals/bpe2000.doc*
Curb Cuts & Ramps for Disabled Persons	*http://www.ncdot.org/doh/preconstruct/altern/value/manuals/handi.pdf*
Traditional Neighborhood Development Manual	*http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf*
ADA – Detectable Warnings	*http://www.ncdot.org/doh/preconstruct/ps/std_draw/06english/08/default.html*
Highway Design Branch – Design Manual	*http://www.ncdot.org/doh/preconstruct/altern/value/manuals/designmanual.html*
Policy and Procedure Manual (See Section 28)	*http://www.ncdot.org/doh/preconstruct/altern/value/manuals/ppm/*
Policy on Street & Driveway Access	*http://www.ncdot.org/doh/preconstruct/altern/value/manuals/pos.pdf*
Traffic Engineering and Safety Systems Branch	***http://www.ncdot.org/doh/preconstruct/traffic/***
NC Supplement to the Manual on Uniform Traffic Control Devices	*http://www.ncdot.org/doh/preconstruct/traffic/MUTCD/*
Crosswalks/Mid-Block Signing and Pavement Markings	*http://www.ncdot.org/doh/preconstruct/traffic/teppl/Topics/C-36/C-36.html*

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UNC Highway Safety Research Center	***http://www.hsrc.unc.edu***
Pedestrian & Bicycle Information Center	***http://www.pedbikeinfo.org/index.htm***
Walking	*http://www.walkinginfo.org/*
Engineer Pedestrian Facilities	*http://www.walkinginfo.org/engineering*
Pedestrian Safety Guide & Countermeasure Selection System (PEDSAFE)	*http://www.walkinginfo.org/pedsafe/*
Develop Plans and Policies	*http://www.walkinginfo.org/develop*
National Center for Safe Routes to School	*http://www.saferoutesinfo.org*
Federal Highway Administration Bicycle & Pedestrian Program	***http://www.fhwa.dot.gov/environment/bikeped/***
Bicycle and Pedestrian Provisions of Federal Transportation Legislation	*http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm*
Bicycle & Pedestrian Programs	*http://www.fhwa.dot.gov/environment/bikeped/overview.htm*
Program & Design Guidance	*http://www.fhwa.dot.gov/environment/bikeped/guidance.htm*
Links to Other Resources	*http://www.fhwa.dot.gov/environment/bikeped/bipedlnk.htm*
Publications	*http://www.fhwa.dot.gov/environment/bikeped/publications.htm*
Pedestrian Safety	*http://safety.fhwa.dot.gov/ped_bike/ped/index.htm*
Pedestrian & Bicycle Safety Research Page	*http://www.tfhrc.gov/safety/pedbike/index.htm*
National Highway Traffic Safety Administration – Traffic Safety: Pedestrians	***http://www.nhtsa.gov/portal/site/nhtsa/menuitem.dfedd570f698cabbbf30811060008a0c/***
National Center for Bicycling & Walking	***http://www.bikewalk.org/***